F   ENT COOPERATION TREA

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 14 September 1999 (14.09.99)	
International application No. PCT/US98/27465	**Applicant's or agent's file reference** 06975/029WO4
International filing date (day/month/year) 23 December 1998 (23.12.98)	**Priority date** (day/month/year) 24 December 1997 (24.12.97)
Applicant WASSOM, John, T., Jr. et al	

1. The designated Office is hereby notified of its election made:

   [X] in the demand filed with the International Preliminary Examining Authority on:

   22 July 1999 (22.07.99)

   [ ] in a notice effecting later election filed with the International Bureau on:

2. The election   [X]   was

   [ ]   was not

   made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Lazar Joseph Panakal

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 06975/029W04	**FOR FURTHER** **ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 98/ 27465	International filing date *(day/month/year)* 23/12/1998		(Earliest) Priority Date *(day/month/year)* 24/12/1997
Applicant AMERICA ONLINE, INC. et al.			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of _____3_____ sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. _____

   [ ] as suggested by the applicant.   [X] None of the figures.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6   G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6   G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BIEBER M ET AL: "Fourth generation hypermedia: some missing links for the World Wide Web" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 31-65, XP002101194 ISSN 1071-5819 see page 53, line 30 - page 56, line 28 see figures 1-3	1-10, 12-16, 20-46
X	US 5 481 710 A (KEANE PATRICK J ET AL) 2 January 1996 see abstract see column 1, line 62 - column 2, line 54 see column 6, line 46 - column 8, line 9	42,44
A		1-41

-/--

| X | Further documents are listed in the continuation of box C. · | | X | Patent family members are listed in annex. |

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 April 1999	12/05/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Abbing, R

2

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/27465

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	TAUSCHER L ET AL: "How people revisit web pages: empirical findings and implications for the design of history systems" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 97-137, XP002101195 ISSN 1071-5819 see page 101, line 30 - page 104, line 22 see page 124, line 15 - page 128, line 8	1-46
A	BIEBER M: "Providing information systems with full hypermedia functionality" PROCEEDING OF THE TWENTY-SIXTH HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES (CAT. NO.93TH0501-7), WAILEA, HI, USA, 5-8 JAN. 1993, pages 390-400 vol.3, XP002101196 ISBN 0-8186-3230-5, 1993, Los Alamitos, CA, USA, IEEE, USA see page 393, column 2, line 7 - page 393, column 2, line 49 see page 395, column 2, line 5 - page 396, column 2, line 34 see figures 2,3	1,2, 28-30, 42,44

2

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5481710 A	02-01-1996	NONE	

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
FISH & RICHARDSON P.C.
Attn. PHILLIPS, J.
601 Thirteenth Street, N.W.
Washington, DC 20005
UNITED STATES OF AMERICA

**NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION**

(PCT Rule 44.1)

Docketed By Practice Systems
Action Code:
Base Date:

Date of mailing (day/month/year)	12/05/1999

Applicant's or agent's file reference		
06975/029W04	**FOR FURTHER ACTION**	See paragraphs 1 and 4 below

International application No.	International filing date (day/month/year)
PCT/US 98/ 27465	23/12/1998

Applicant

AMERICA ONLINE, INC. et al.

1. [X] The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

   When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

   Where? Directly to the   International Bureau of WIPO
                                   34. chemin des Colombettes
                                   1211 Geneva 20. Switzerland
                                   Fascimile No.: (41-22) 740.14.35

   For more detailed instructions, see the notes on the accompanying sheet.

   Docketed By Billing Secretary
   Due Date:
   Deadline:
   Initials:

2. [ ] The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. [ ] **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2. the applicant is notified that:

   [ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

   [ ] no decision has been made yet on the protest: the applicant will be notified as soon as a decision is made.

4. **Further action(s):**   The applicant is reminded of the following:

   Shortly after **18 months** from the priority date. the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication. a notice of withdrawal of the international application. or of the priority claim, must reach the International Bureau as provided in Rules 90*bis*.1 and 90*bis*.3. respectively. before the completion of the technical preparations for international publication.

   Within **19 months** from the priority date. a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

   Within **20 months** from the priority date. the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office. P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040. Tx. 31 651 epo nl. Fax: (+31-70) 340-3016	Lucia Van Pinxteren

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international pbulication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

    (i)   the claim is unchanged;

    (ii)   the claim is cancelled;

    (iii)   the claim is new;

    (iv)   the claim replaces one or more claims as filed;

    (v)   the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
    "Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."

2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
    "Claims 1 to 15 replaced by amended claims 1 to 11."

3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
    "Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
    "Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."

4. [Where various kinds of amendments are made]:
    "Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 06975/029W04	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as. where applicable. item 5 below.
International application No. PCT/US 98/ 27465	International filing date *(day/month/year)* 23/12/1998	(Earliest) Priority Date *(day/month/year)* 24/12/1997
Applicant AMERICA ONLINE, INC. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

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[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

    a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed. unless otherwise indicated under this item.

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    b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application. the international search was carried out on the basis of the sequence listing :

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    [ ] filed together with the international application in computer readable form.

    [ ] furnished subsequently to this Authority in written form.

    [ ] furnished subsequently to this Authority in computer readble form.

    [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

    [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

    [X] the text is approved as submitted by the applicant.

    [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

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    [ ] the text has been established. according to Rule 38.2(b). by this Authority as it appears in Box III. The applicant may. within one month from the date of mailing of this international search report. submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. _____

    [ ] as suggested by the applicant.   [X] None of the figures.

    [ ] because the applicant failed to suggest a figure.

    [ ] because this figure better characterizes the invention.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6   G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6   G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and. where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication. where appropriate, of the relevant passages	Relevant to claim No.
X	BIEBER M ET AL: "Fourth generation hypermedia: some missing links for the World Wide Web" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 31-65, XP002101194 ISSN 1071-5819 see page 53, line 30 - page 56, line 28 see figures 1-3	1-10, 12-16, 20-46

X	US 5 481 710 A (KEANE PATRICK J ET AL) 2 January 1996 see abstract see column 1, line 62 - column 2, line 54 see column 6, line 46 - column 8, line 9	42,44
A		1-41

	-/--	

| | X | Further documents are listed in the continuation of box C. | | X | Patent family members are listed in annex. |

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure. use. exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents. such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 April 1999	12/05/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office. P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040. Tx. 31 651 epo nl. Fax: (+31-70) 340-3016	Abbing, R

Form PCT ISA 210 (second sheet) July 1992)

2

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document. with indication.where appropriate. of the relevant passages	Relevant to claim No.
A	TAUSCHER L ET AL: "How people revisit web pages: empirical findings and implications for the design of history systems" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 97-137, XP002101195 ISSN 1071-5819 see page 101, line 30 - page 104, line 22 see page 124, line 15 - page 128, line 8 ---	1-46
A	BIEBER M: "Providing information systems with full hypermedia functionality" PROCEEDING OF THE TWENTY-SIXTH HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES (CAT. NO.93TH0501-7), WAILEA, HI, USA, 5-8 JAN. 1993, pages 390-400 vol.3, XP002101196 ISBN 0-8186-3230-5, 1993, Los Alamitos, CA, USA, IEEE, USA see page 393, column 2, line 7 - page 393, column 2, line 49 see page 395, column 2, line 5 - page 396, column 2, line 34 see figures 2,3 -----	1,2, 28-30, 42,44

2

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5481710	A	02-01-1996	NONE	

PCT

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G06F 17/30	**A1**	(11) International Publication Number: **WO 99/34306** (43) International Publication Date: 8 July 1999 (08.07.99)

(21) International Application Number: PCT/US98/27465

(22) International Filing Date: 23 December 1998 (23.12.98)

(30) Priority Data:
60/068,868   24 December 1997 (24.12.97)   US
60/070,617   6 January 1998 (06.01.98)   US

(71) Applicant *(for all designated States except US)*: AMERICA ONLINE, INC. [US/US]; 22000 AOL Way, Dulles, VA 20166 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: WASSOM, John, T., Jr. [US/US]; 2605 East Meredith Drive, Vienna, VA 22181 (US). HARRIS, Jerry, L. [US/US]; 21 Berkeley Street, Arlington, MA 02474 (US).

(74) Agent: PHILLIPS, John, C.; Fish & Richardson P.C., 601 Thirteenth Street, N.W., Washington, DC 20005 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: MANAGING NAVIGATION AND HISTORY INFORMATION

(57) Abstract

History and navigation information in a computer application are managed by establishing a global context that can communicate with multiple resources, each of which resides in an associated local context. State information from one or more of the local contexts is communicated to the global context, and global navigation information (for example, defining a drop–down history list or back/forward button states) is generated based on the communicated state information. Using the global navigation information, a user of the computer application can move among previously visited resources in a global manner.

MANAGING NAVIGATION AND HISTORY INFORMATION

TECHNICAL FIELD

This invention relates to managing navigation and history information in a computer application or utility, for example, in a browser application or in an online service provider
5 environment.

BACKGROUND

The computer system illustrated in Fig. 1 represents a typical hardware setup for executing software that allows a user to perform tasks such as communicating with other
10 computer users, accessing various computer resources, and viewing, creating, or otherwise manipulating electronic content -- that is, any combination of text, images, movies, music or other sounds, animations, 3D virtual worlds, and links to other objects. The system includes various input/output (I/O) devices (mouse 103, keyboard 105, display 107) and a general purpose computer 100 having a central processor unit (CPU) 121, an I/O unit 117 and a
15 memory 109 that stores data and various programs such as an operating system 111, and one or more application programs 113.

As shown in Fig. 2, a user of a computer system can access electronic content or other resources either stored locally at the user's own client system 202 (e.g., a personal or laptop computer) or remotely at one or more server systems 200. An example of a server system is a
20 host computer that provides subscribers with online computer services such as e-mail, chat rooms, Internet access, electronic newspapers and magazines, etc. Users of a host computer's online services typically communicate with one or more central server systems 200 through client software executing on their respective client systems 202. In practice, a server system 200 typically will not be a single monolithic entity but rather will be a network of intercon-
25 nected server computers, possibly physically dispersed from each other, each dedicated to its own set of duties and/or to a particular geographical region. In such a case, the individual servers are interconnected by a network of communication links, in known fashion. One such server system is "America Online" from America Online, Incorporated of Virginia.

A "browser," as depicted in Fig. 3A, is an application that enables users to access and view electronic content stored either locally or remotely, such as in a network environment (local area network (LAN), intranet, Internet). A typical browser window 300 provides a user with several options for specifying the particular content that the user desires to view. For

5 example, the user can access a pull-down menu from a menu bar 302 to identify a particular file or address to open, or the user can manually type an address (e.g., Uniform Resource Locator (URL)) corresponding to the desired content in an Address field 304.

Several types of user applications maintain history state information identifying the programs, files or other content most recently accessed. A word-processing program, for

10 example, may maintain a short drop-down menu showing three or four recently opened files, which a user can then easily re-open with a single click of the mouse button. A browser similarly keeps track of the history of addresses or locations accessed by the user, and uses this history information to provide the user with mechanisms for moving among the locations previously visited.

15 More particularly, as a user accesses content at a particular address and then moves on to a new address, and after that another new address and so on, the browser 300 keeps track of the past files or addresses that the user has visited or otherwise accessed. If the user subsequently desires to return to one of these locations, the browser may provide several different mechanisms for doing so, for example as shown in Fig. 3A, through a drop-down window 310

20 referred to as a "history list", and/or by using Back and Forward buttons 306 and 308, which provide stepwise access to the browser's "navigation tree" -- a logical construct that defines the next location to jump to when either the Back 306 or Forward 308 buttons are clicked.

In the example shown in Fig. 3A, a user presently accessing *page5* can return to the immediately previous location, *page4*, either by clicking the cursor once on the Back button

25 306 or by clicking the cursor first on the combo-box button 311, which causes the history list 310 to be displayed, and then clicking the cursor on the second topmost entry 312 in the history list 310. Subsequently, the user either can continue clicking the Back button 306 to step back through the addresses previously visited as defined by the browser's navigation tree (e.g., *page3*, *page2*, and *page1* in that order) or can click on the Forward button 308 to return

30 to the location from where the user just came, *page5*. In addition, the user can randomly access any of the entries in the history list 310 by clicking the cursor on the desired location.

Or the user can jump to some altogether new location, for example, by typing an address in the Address field 304, by using menu functions in the menu bar 302, or by clicking on a link 320 displayed in the browser window 300.

Whenever the browser jumps to another location, by whatever means, the history list 5 310 and the navigation tree may be updated or otherwise modified to reflect the current navigation state. For example, as shown in Fig. 3B, if a user jumps to a new location not yet visited (e.g., *page6*), the Address field 304 displays the new address and the history list is modified by inserting a new entry 322 immediately below the Address field 304 to list the previous location (*page5*). The rest of the history entries 312-318 already in the history list 10 310 are shifted down by one row to make room for the new entry 322. If the history list 310 becomes too lengthy, the browser may delete the oldest entries to make room for each new location visited.

By way of another example, if the user then jumped to a previously visited location by clicking on an entry displayed in the history list 310, for example, *page3*, the browser would 15 update the history list to appear as in Fig. 3C, in which the same entries appear but in a different order. Specifically, the updated history list 310 shown in Fig. 3C displays the now current address, *page3*, in the Address field 304, and the other previously visited locations are displayed below the Address field 304 in the order in which they were last visited (most recently visited at top, oldest at bottom). An entry for *page3* no longer is displayed below the 20 Address field 304 because the history list 310 typically will not contain duplicate entries for a location even though, as in this example, that location was visited more than once.

For each jump to another location, whether previously visited or not, the browser also updates or modifies its navigation tree as appropriate. Fig. 4A depicts a navigation tree in which the circles represent the different locations visited and the arrows represent jumps from 25 one location to the next. The particular navigation tree example in Fig. 4A represents an order of events in which a user makes nine jumps to visit seven different locations in the following order: *page1* → *page2* → *page3* → *page4* → *page5* → *page4* → *page5* → *page6* → *page3* → *page7*.

Fig. 4B, a table corresponding to the navigation tree shown in Fig. 4A, shows state 30 information associated with the Back and Forward buttons at each of the nine jumps. During the first four jumps (*page1* → *page2* → *page3* → *page4* → *page5*) the Back Button State

accumulates and stores each of the successive locations for potential future use if the user clicks the Back button. After jump 4, for example, the user could click the Back button four times in succession to traverse the navigation tree in reverse order (*page5* → *page4* → *page3* → *page2* → *page1*).

5   In the first five states (jumps 0-4), because the user has not returned to any previously visited location, the Forward Button state remains empty (i.e., no Forward jump location is defined). At jump 5, however, the Forward Button state reflects that a single jump in the Forward direction (to *page5*) is available because the user has returned to a previously visited location (*page4*). At jumps 6 and 7, the Forward Button state again becomes empty as the
10 user moves on to a new location, *page6*.

At jump 8, as shown in Fig. 4A, the user has traveled backward in the navigation tree from *page6* directly to *page3*, for example, by selecting the *page3* entry from the history list. At this point, as shown in Fig. 4B, the Back button state information points to *page2* and then to *page1* (in that order, assuming successive clicks of the Back button), while the Forward
15 button state information points to *page4*, *page5*, and then to *page6* (in that order, assuming successive clicks of the Forward button).

At jump 9, the user decides to view a new location and thus points the browser (e.g., by typing in an address in the Address field) to *page7*, at which point the navigation tree is "pruned." That is, the navigation tree is modified to reflect the current state and to ensure that
20 subsequent clicks of the Back and Forward buttons provide users with a predictable response. In the specific example of the navigation tree shown in Fig. 4A, all three of the locations within the dotted region 400 -- *page4*, *page5* and *page6* -- are removed from the navigation tree as a result of the pruning that occurs when the user moved from *page3* to *page7*. Consequently, as shown in Fig. 4B, the Forward button state again becomes empty and the
25 Back button state information specifies that three successive clicks of the Back button would cause the browser to move from *page7* to *page3*, *page2* and *page1*, in that order. Pruning of the navigation tree in this fashion typically is independent of, and does not affect, the order or identity of locations displayed in the history list -- that is, all seven locations *page1* - *page7* still would appear in the history list even though *page4* - *page6* were pruned from the
30 navigation tree for the Back and Forward buttons.

SUMMARY

Various implementations of the invention may include one or more of the following features.

In one aspect, history and/or navigation information in a computer application (e.g.,
5 client software for an online computer service) can be managed by establishing a global context that can communicate with multiple resources (e.g., a browser application or a non-browser application such as a word-processor or the like), each of which resides in an associated local context. State information (e.g., an Internet URL or a non-Internet address in a private network) from one or more of the local contexts is communicated, for example, in
10 response to a change in state in one or more of the local contexts, to the global context, and global navigation information (for example, defining a drop-down history list or back/forward button states) is generated and maintained based on the communicated state information. Using the global navigation information, a user of the computer application can move among previously visited resources in a global manner. To facilitate this movement, graphical
15 controls (e.g., Back and Forward buttons and/or a drop-down history list) can be displayed in a GUI to enable a user of an application to move among resources based on the global-context navigation information.

The change in state in a local context can include a change in a title or an address, or both, associated with a resource. The change in state in a local context can be triggered by
20 input from a user of the computer application, for example, by one or more of clicking a cursor in a window associated with a resource, clicking on a link in a window associated with a resource, clicking on a Back/Forward navigation button, selecting an address from a displayed history list, or typing an address in an address field. Alternatively, the change in state in a local context can be triggered by a computer process transparently to a computer
25 user, for example, when the host computer changes the title of an existing window.

The global navigation information maintained by the computer application can include state information for global-context Back/Forward buttons displayed in a graphical user interface associated with the computer application and/or state information for a global-context history list presented to a user of the computer application.

30 Using navigation input received from a user and the maintained the global navigation information, the computer application can change the focus (e.g., by activating a window) to

move among the available resources -- e.g., by changing the focus from a current window to a previously accessed window. In changing focus from a current window to a previously accessed window, the computer application may use local-context navigation information maintained by a resource (e.g., a browser application) when the user navigating within that

5   resource's local context.

Optionally, if a previously accessed window associated has since been closed, a new instance of that window can be spawned in connection with changing the focus to that window. The user may be allowed to specify whether closing a window associated with a resource results in deletion of the window from the global navigation information. In that

10   case, maintenance of the global navigation information may include deleting navigation information corresponding to the closed window.

Moreover, maintenance of the global navigation information may include selectively modifying the global navigation information depending on a manner in which a user interacts with the computer application. For example, modification of the global navigation informa-

15   tion could be prevented if the user interacted with the computer application in any one or more of the following manners: clicking a cursor in a window associated with a resource, clicking on a link in a window associated with a resource, clicking on a Back/Forward navigation button, selecting an address from a displayed history list, or typing an address in an address field.

20   In addition, or alternatively, maintenance of the global navigation information may include pruning a navigation tree, for example, by determining that a user of the computer application is accessing a new address, and deleting forward button state information.

In another aspect, managing a history list in a computer application can be accomplished by receiving state information from multiple independent resources, each of which

25   resides in an associated local context. Based on the received state information, the computer application maintains a history of resources accessed by a user of the computer application, and may present a global-context history list (e.g., a drop-down history list in a GUI) representative of an order in which the resources were accessed. The history of resources maintained by the computer application may correspond to a navigation path among re-

30   sources. A user of the computer application may return to any of the listed resources by selecting a desired resource from the global-context history list. Optionally, the global-

context history list presented to the user may selectively omit an identity of one or more of the accessed resources, for example, for security or privacy reasons.

State information from a local context may be communicated to the application in response to a change in state in the resource's local context (e.g., a change in an address or

5 title, or both, associated with the resource). The state information may include an Internet URL address or a private network (i.e., non-Internet) address, or both.

Maintenance of the history of accessed resources may include selectively modifying the global-context history list depending on a manner in which a user interacts with the computer application. For example, modification of the global-context history list could be

10 prevented if the user interacted with the computer application in any one or more of the following manners: clicking a cursor in a window associated with a resource, clicking on a link in a window associated with a resource, clicking on a Back/Forward navigation button, selecting an address from a displayed history list, or typing an address in an address field.

Moreover, maintenance of the history may include adding a new entry to a top of a list

15 if the resource had not been accessed previously or rearranging entries in the list if the resource had been accessed previously.

The techniques, methods and systems described here may provide one or more of the following advantages. For example, they may permit a computer application, such as a browser or an online service, to provide users with a global context for history and navigation

20 information. As a result, a user can operate a single set of navigation controls (e.g., Back/Forward buttons, drop-down history list) to navigate among separate and independent resources (application, windows, etc.) that have no knowledge of each other's state or existence. In addition, by implementing specific rules for updating or otherwise modifying the global history state information, users are provided with a robust navigation environment

25 for moving quickly and easily among previously visited windows.

The details of one or more embodiments are set forth in the accompanying drawings and the description below. Other features, objects, and advantages of the invention will be apparent from the description and drawings, and from the claims.

DESCRIPTION OF DRAWINGS

Fig. 1 is a block diagram of a computer system.

Fig. 2 shows a typical network computing environment.

Figs. 3A-3C show elements of a graphical user interface for an exemplary browser
application.

Fig. 4A is an example of a navigation tree.

Fig. 4B is a table of Forward and Back button state information corresponding to the
navigation tree of Fig. 4A.

Fig. 5 shows an example of a graphical user interface for an online service.

Figs. 6A-6I show successive states of a history list as a user jumps to different
locations.

Fig. 7 is a table of Forward and Back button state information corresponding to the
history list states shown in Figs. 6A-6I.

Figs. 8A and 8B are flowcharts of processes for managing global history and naviga-
tion information.

Like reference numbers and designations in the various drawings indicate like
elements.

DETAILED DESCRIPTION

Fig. 5 shows a graphical user interface (GUI) 500 for an online computer service in
which a user (i.e., a subscriber of the online service) has several different windows (or
"forms") open simultaneously. Each window typically associated with a different resource --
for example, a browser or other application, a system utility, a file of electronic content, etc. --
or, optionally, a single resource can have a main window with one or more associated sub-
windows. For example, as shown in Fig. 5, Browser1 is a single resource having open a
window 505 and two sub-windows W1 and W2, perhaps corresponding to web-pages at two
different URLs. But typically each resource will be associated with a single window -- e.g.,
window A7 -- with no sub-windows. In the example shown, windows having a "W" prefix
correspond to Internet content located at an associated URL and typically viewed with a
browser, while windows having an "A" prefix correspond to non-public resources, for

example, residing in a private network or on a client computer. As used herein, the terms "address" and "location" are interchangeable and apply to both types of windows.

In conventional systems, each resource (e.g., Browser1) may maintain its own local set of history and navigation information independently of the other resources. In such a system,

5 Browser1 could have its own navigation mechanisms (e.g., Back/Forward buttons and/or a drop-down history list) to move between windows W1 and W2. However, a browser in a conventional system is unaware of the existence of, and unable to coordinate with, other windows and/or resources that are open and being used concurrently. As a result, Browser1's navigation mechanisms could not be used to move from window W1 or W2, for example, to

10 window A3. In other words, Browser1's history and navigation information is limited to its own local context.

In contrast, the client application 500 shown in Fig. 5 maintains navigation and history information in a global context -- that is, with knowledge of, and the potential ability to coordinate and move between all of the resources accessed by the user. As a result, the client

15 application 500 is able to provide a user with a robust history and navigation management environment for moving among potentially disparate and independent resources.

In the course of doing work, a user may desire to move between several different windows in an arbitrary manner. For example, a user working on a research project may open a window A3 for viewing an online periodical on the service provider's private network, two

20 different sub-windows W1 and W2 within the Browser1 to do research on the Internet, and an e-mail window A7 to type up notes. The user can move among the various open windows, and thereby facilitate use of the corresponding resource, by clicking the mouse cursor in the window of interest -- an operation referred to as making the window "active" or in "focus."

In the example shown in Fig. 5, the user has open three service provider-based

25 windows, A3, A4 and A7, and two separate browser instances, Browser1 and Browser2. Any suitable browser may be used, for example, Microsoft Internet Explorer or Netscape Navigator, and can be implemented either as a standalone application or in modified form as an embedded browser. In the example shown in Fig. 5 and described below, the client application uses an embedded Microsoft Internet Explorer browser that has been modified to appear

30 as a standard window without the toolbars and other GUI features present on the standalone version. The client application communicates with the browser through a standard API

(application programming interface). The client application communicates with the host computer -- for example, in order to create, delete or manage windows -- using messages generated by a scripting language.

As indicated by the arrows in Fig. 5, the user in this example makes eight jumps

5 among seven different locations (W1, W2, A3, A4, W5, W6, A7) within five separate resources 505, 510, 515, 517 and 520. The client application 500 keeps track of these jumps as they are made and uses the information as appropriate to modify both a global history list 550 and the navigation state information for global Back and Forward buttons 525, 530. The user can manipulate these global history and navigation mechanisms as desired to quickly and

10 easily step between locations previously visited, without regard to which location corresponds to which resource.

Figs. 6A-6I depict successive states of the global history list 550, and Fig. 7 shows navigation state information for the global Back and Forward buttons 525, 530, as the user makes the eight jumps among the various locations.

15   Fig. 6A shows the state of the history list while the user is visiting location W1 in Fig. 5. At this point, the history list contains only a single entry corresponding to W1. Because the user is navigating within the context of a browser, the client's global Back and Forward button states point to Browser1, as shown in Fig.7, meaning that for any Back or Forward button clicks received, the client should instruct Browser1 to access its own local history and

20 navigation information in making jumps backward or forward, depending on which button was clicked. At Jump 0, however, Browser 1 has not yet made any jumps and thus its local history information is empty. Consequently, because the client also has not yet accumulated any global back/forward state information, the client's Back and Forward states also are empty as shown in Fig. 7.

25   The user then jumps to a new address W2, for example, by clicking on a link displayed in W1, while remaining in the context of Browser1. Typically, this action would cause window W1 to update its contents and address to point to the URL designated by the link, in which case there would be no need for window W2. But in the example shown, when the user clicks on the link, Browser1 is configured to spawn a new sub-window, W2, corresponding to

30 the new URL. In either case, the history list is updated in response to the jump by adding a new entry at the top corresponding to W2. As shown in Fig. 7, the client's Back / Forward

button state information indirectly points to and uses Browser1's back and forward state information because the user still is navigating within the local context of Browser1.

As shown in Fig. 6C, a subsequent jump to A3 causes the history list to add another new entry corresponding to location A3 -- notably, a location outside the context of Browser1.
5 In addition, as shown in Fig.7, the client's Back button state information points to Browser1, thereby indicating that the client should return to Browser1 and use its local history information (W2 → W1) if the user clicks the back button while at location A3.

At this point, the user could access the drop-down history list to return to any previously visited location in the history list. Alternatively, the user could press the Back
10 button to return either to location W2 (a single click of the Back button) or to W1 (two clicks of the Back button). If the client application did not keep track of global history and navigation information, the user would be unable to use the navigation controls to move between different resources in this manner. This is because window A3 is unaware of the existence of Browser1 and its two windows, W1 and W2, and thus does not have sufficient
15 context to make a Backward jump from A3 to W2.

A subsequent jump from A3 back to W2 causes a rearrangement in the history list, as shown in Fig. 6D, to reflect that W2 is the most recently visited location and locations A3 and W1 both were visited previously. Even though W2 also was visited between locations A3 and W1, the history list does not reveal that fact because the history list by design does not include
20 duplicate entries. At the same time, Browser1 modifies its local history information to list only a single jump back to W1, while the client's global button state information is modified to add a new entry (A3) to the Forward button state.

Next, upon jumping to A4, a new entry for that location is added to the top of the history list as shown in Fig. 6E and the navigation tree is pruned, as indicated in Fig. 7, to
25 remove A3 from the Back/Forward buttons' navigation path. Pruning typically has no affect on the history list or on the windows displayed to the user. Rather, pruning affects the state information for the Back/Forward buttons and thus modifies the navigation path that a user will take at any given time upon pressing the Back/Forward buttons. The client application could be designed, however, such that pruning of the navigation tree also affects the history
30 list or the display of windows, or both.

Subsequent jumps to locations W5 and W6 in Browser2, cause corresponding changes in the history list, as shown in Figs. 6F-6G, and in the Back/Forward state information, as shown in Fig. 7.

Departing momentarily from the example of Fig. 5, assume that following jump 6

5 (while the user is at W6), the user desires to use the Back button to jump backwards two hops to A4. Jumps (forward or backward) within the same browser context are effected by having the client application instruct the browser, via the API, to move forward or backward one jump at a time. However, due to its local context for history and navigation information, Browser2 in this example has no knowledge of location A4 and thus can facilitate only a

10 single hop backward to W5. Accordingly, using the API, the client application first instructs Browser2 to make a jump backwards to W5. Thereafter, the client application takes over and, using its global history and navigation information, causes A4 to become the focus.

In other words, once the user is within the local history context of a browser window and clicks the Back/Forward buttons, the user will traverse to the beginning or end of that

15 browser's local history list until it is exhausted. As a result, the client application does not have to keep track of each address (e.g., URL) visited by the browser. Rather, because the client application effectively uses the browser's local history list while the user in navigating within the browser's local history context, the client application needs only to keep track of the locations visited by the user on either side of the browser -- i.e., the identity of the

20 locations to jump to when the browser's local back/forward navigation information is exhausted.

Returning to the example of Fig. 5, subsequent jumps back again to A4 and finally to A7, cause corresponding changes to the history list, as shown in Figs. 6H-6I, and a similar pruning of locations W5 and W6, as shown in Fig. 7.

25   Figs. 6A-6I depict the situation in which the user moves between locations in a manner that triggers the history list to change. Depending on the desired implementation, however, the history list could be selectively modified depending on the manner in which a user jumps from one location to another. For example, the client application could be designed so that if the user moves among open windows simply by changing the focus (i.e., clicking the cursor in

30 a desired window), then the history list is not rearranged or otherwise modified. Alternatively, or in addition, the client application could be designed to modify the history list in response to

clicks on the Back/Forward buttons, clicks on links displayed within a window, and/or the entry of an address in the Address field.

In a similar vein, updating of the history list could be constrained for certain specified windows or locations such that the location's address or other identifying information is not

5 displayed in the history list. This might be the case where the window's identifying information is sensitive for some reason, or where the client does not want users to be able to access the address independently of the client application.

The state information for the Back and Forward buttons generally will be affected whenever the user jumps to another location, regardless of the manner in which the jump is

10 made, in order to provide users with predictable behavior for the Back/Forward buttons. However, this behavior too can be changed by the system designer as desired to delimit or otherwise specify the circumstances under which the Back/Forward button state information is modified.

Another design parameter that can be changed by a system designer is the behavior

15 exhibited when a user attempts to use the Back/Forward buttons to move to a previously visited window that has since been closed. In one implementation, the client application can allow such a back/forward jump by spawning another instance of the closed window and making that window the focus. Alternatively, the client application could effectively prevent such Back/Forward button-induced jumps by purging all traces of a window from the

20 navigation and history information when the window is closed. The client application could allow users to switch back and forth between these two different behaviors by providing an appropriate preference option, for example, a GUI check box that enables or disables the feature "Use Back/Forward buttons to track open windows only."

Fig. 8A is a flowchart showing a process by which the client application manages the

25 global history list based on incoming information about changes to or additions of window titles or associated addresses, which may occur independently of one another. For example, occasionally the title of a non-browser window (e.g., a window associated with the online service's private content) will be changed while maintaining the same address. In that case, the corresponding history list entry should be modified to update (swap) the new title for the

30 old title, and without creating a new history list entry.

On the other hand, changes to window titles and addresses often occur in conjunction with each other (for example, when a user clicks on a link to a URL) in which case the history list should be modified to add a new entry if the address was not visited previously, or rearranged if the address was visited previously.

5   Accordingly, the process of Fig. 8A begins whenever the user triggers a jump to a location different (whether new or previously visited) than the present location or whenever the title or address of an existing window (whether active or not) is to be changed (for example, automatically by the host computer). In response to either of these events, the client receives a message either that the title or the address of a particular window is being changed 10 (step 801).

The client then determines whether or not the window under consideration is a browser (step 803). If the window is not a browser, the flow jumps to step 807, discussed below. If the window is a browser, the client updates the visible entry appearing in the Address field (step 805). This visible address may differ from the "actual URL" that corresponds to the true 15 address of the location being accessed. In some cases, an address entered by the user might not be the true or complete address, but rather may serve merely as a proxy or abbreviation that points to the actual address.

The client next determines whether or not the browser has finished loading the content from its associated URL, or whether the browser is in a transient state (i.e., still loading 20 content from a designated URL) (step 806). If the browser has not finished loading, the process ends for the time being. When the browser subsequently finishes loading, it signals a new event and the process begins again at step 801.

If, on the other hand, the browser has finished loading, the client next determines whether the address/title in question is new (step 807). If so, the client adds the address as a 25 new entry at the top of the history list (step 811). If the list has reached its maximum size, the entry at the bottom of the list is removed as the new entry is added to the top. If the address/title is not new, the number of entries in the history list is kept the same and the list is rearranged to move the address/title from its prior slot up to the top of the list (step 809).

Fig. 8B is a flowchart showing a process by which the client application manages the 30 global Back/Forward button state information based on incoming information about changes

to, or additions of, window titles or associated addresses. Step 801 in Fig. 8B is the same as in Fig. 8A.

At step 813, the client determines whether or not the window under consideration was newly generated. If so, the client uses the window's GID (a globally unique identifier) to add
5 a new entry to the client's global Back/Forward state information (step 821).

If the window is not new, the client determines whether or not the window is a browser (step 815). If so, the client continues to use the browser's local back/forward state information (step 817) and the process ends without altering the client's global Back/Forward button state information.

10 If the window is not a browser, the client determines whether the window's address has changed from what it was previously (step 819). If the address has changed, the client uses the window's new address to add a new entry to the client's global Back/Forward state information (step 821). If the address has not changed, the process ends without altering the client's global Back/Forward button state information.

15 Next, the client determines whether the client's global Forward state is empty (step 823). If so, no pruning is required and the process ends. However, if the client's global Forward state is not empty, then the client prunes the currently saved Forward button state information, and the process ends thereafter.

The techniques, methods and systems described here may find applicability in any
20 computing or processing environment in which electronic content may be viewed, accessed or otherwise manipulated. For example, the global navigation tree and history maintenance techniques could be used by virtually any user application (e.g., word-processor, drawing program, etc.) in which the user opens multiple files in multiple windows and desires to move among them in an arbitrary manner. Similarly, an operating system could maintain a global
25 context to track the use of various system resources (applications, utilities, etc.), and then use that information to provide users with a quick and easy mechanism for jumping back to, and among, previously used resources.

Various implementations of these systems and techniques may be realized in digital electronic circuitry, or in computer hardware, firmware, software, or in combinations thereof.
30 A system or other apparatus that uses one or more of the techniques and methods described here may be implemented as a computer-readable storage medium, configured with a

computer program, where the storage medium so configured causes a computer system to operate on input and/or generate output in a specific and predefined manner. Such a computer system may include one or more programmable processors that receive data and instructions from, and transmit data and instructions to, a data storage system, and suitable input and

5 output devices.

Each computer program may be implemented in a high-level procedural or object-oriented programming language, or in assembly or machine language if desired; and in any case, the language may be a compiled or interpreted language. Suitable processors include, by way of example, both general and special purpose microprocessors. Generally, a

10 processor will receive instructions and data from a read-only memory and/or a random access memory. Storage devices suitable for tangibly embodying computer program instructions and data include all forms of non-volatile memory, including semiconductor memory devices, such as EPROM, EEPROM, and flash memory devices; magnetic disks such as internal hard disks and removable disks; magneto-optical disks; and CD-ROM disks.

15 Any of the foregoing may be supplemented by, or implemented in, specially-designed ASICs (application-specific integrated circuits).

A number of embodiments of the present invention have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. Accordingly, other embodiments are within the scope of the

20 following claims.

WHAT IS CLAIMED IS:

1. A method of managing navigation information in a computer application, the method comprising:

establishing a global context that can communicate with a plurality of resources, each resource residing in an associated local context;

communicating state information from one or more of the local contexts to the global context; and

maintaining global navigation information based on the communicated state information.

2. The method of claim 1 in which the communication of state information occurs in response to a change in state in one or more of the local contexts.

3. The method of claim 2 in which the change in state in a local context comprises a change in a title associated with a resource or a change in an address associated with the resource, or both.

4. The method of claim 2 in which the change in state in a local context is triggered by input from a user of the computer application.

5. The method of claim 4 in which the user's triggering input comprises one or more of clicking a cursor in a window associated with a resource, clicking on a link in a window associated with a resource, clicking on a Back/Forward navigation button, selecting an address from a displayed history list, or typing an address in an address field.

6. The method of claim 2 in which the change in state in a local context is triggered by a computer process transparently to a computer user.

7. The method of claim 6 in which the transparent triggering comprises a title change notification from a host computer.

8. The method of claim 1 in which the global navigation information comprises state information for global-context Back/Forward buttons displayed in a graphical user interface associated with the computer application.

9. The method of claim 1 in which the global navigation information comprises state information for a global-context history list presented to a user of the computer application.

10. The method of claim 1 further comprising:

receiving navigation input from a user of the computer application; and

changing a focus to move among the resources based the received navigation input and the global navigation information.

11. The method of claim 10 in which changing the focus comprises activating a window associated with a resource.

12. The method of claim 1 in which maintenance of the global navigation information comprises selectively modifying the global navigation information depending on a manner in which a user interacts with the computer application.

13. The method of claim 12 in which the global navigation information is not modified if the manner in which the user interacts with the computer application comprises one or more of clicking a cursor in a window associated with a resource, clicking on a link in a window associated with a resource, clicking on a Back/Forward navigation button, selecting an address from a displayed history list, or typing an address in an address field.

14. The method of claim 1 in which maintenance of the global navigation information comprises pruning a navigation tree.

15. The method of claim 14 in which pruning the navigation tree comprises:

determining that a user of the computer application is accessing a new address; and

deleting forward button state information.

16. The method of claim 1 further comprising changing focus from a current window to a previously accessed window based on the global navigation information.

17. The method of claim 16 in which, if a window associated with the previously accessed address has been closed, spawning a new instance of that window.

18. The method of claim 16 in which changing focus from a current window to a previously accessed window comprises using local-context navigation information maintained by a resource when navigating within that resource's local context.

19. The method of claim 18 in which the resource maintaining local-context navigation information comprises a browser application.

20. The method of claim 1 in which a user can specify whether closing a window associated with a resource results in deletion of the window from the global navigation information.

21. The method of claim 1 in which maintenance of the global navigation information comprises deleting navigation information corresponding to a closed window.

22. The method of claim 1 in which one or more of the resources comprises a browser application.

23. The method of claim 1 in which one or more of the resources comprises a non-browser application.

24. The method of claim 1 in which the computer application comprises online service client software.

25. The method of claim 1 in which the global navigation information comprises a navigation path to move among resources.

26. The method of claim 1 in which the communicated state information comprises a Uniform Resource Locator address.

27. The method of claim 1 in which the communicated state information comprises a non-internet network address.

28. A method of managing a history list in a computer application, the method comprising:

receiving state information from a plurality of independent resources, each resource residing in an associated local context;

based on the received state information, maintaining a history of resources accessed by a user of the computer application; and

presenting a global-context history list representative of an order in which the resources were accessed.

29. The method of claim 28 further comprising enabling a user of the computer application to return to any of the listed resources by selecting a desired resource from the global-context history list.

30. The method of claim 28 in which a resource communicates state information in response to a change in state in the resource's local context.

31. The method of claim 30 in which the change in state in the resource's local context comprises a change in an address associated with that resource.

32. The method of claim 30 in which the change in state in the resource's local context comprises a change in a title associated with that resource.

33. The method of claim 28 in which the global-context history list presented to the user selectively omits an identity of one or more of the accessed resources.

34. The method of claim 28 in which maintenance of the history of accessed resources comprises selectively modifying the global-context history list depending on a manner in which a user interacts with the computer application.

35. The method of claim 34 in which the global-context history list is not modified if the manner in which the user interacts with the computer application comprises one or more of clicking a cursor in a window associated with a resource, clicking on a link in a window associated with a resource, clicking on a Back/Forward navigation button, selecting an address from a displayed history list, or typing an address in an address field.

36. The method of claim 28 in which presentation of the global-context history list comprises displaying a drop-down history list to a user.

37. The method of claim 28 in which maintenance of the history comprises adding a new entry to a top of a list if the resource had not been accessed previously.

38. The method of claim 28 in which maintenance of the history comprises rearranging entries in a list if the resource had been accessed previously.

39. The method of claim 28 in which the history of resources corresponds to a navigation path among resources.

40. The method of claim 28 in which the state information received from a resource comprises a Uniform Resource Locator address.

41. The method of claim 28 in which the state information received from a resource comprises a non-internet network address.

42. A software application environment for a computer system, comprising:

a plurality of resources each having an associated local context;

an application capable of communicating with each of the plurality of resources, the application maintaining global-context navigation information based on state information received from one or more of the resources; and

a navigation mechanism that enables a user of the application to move among resources based on the global-context navigation information.

43. The software application environment of claim 42 further comprising graphical controls that enable a user of an application to move among resources based on the global-context navigation information.

44. Software, stored on a computer-readable medium, comprising instructions for causing a computer system to perform the following operations:

establish a global context that can communicate with a plurality of resources, each resource residing in an associated local context;

communicate state information from one or more of the local contexts to the global context; and

maintain global navigation or history information, or both, based on the communicated state information.

45. The software of claim 44 further comprising instructions to enable a user of an application to move among resources based on the global navigation or history information.

46. The software of claim 45 further comprising instructions to display graphical controls with which the user interacts to move among resources.
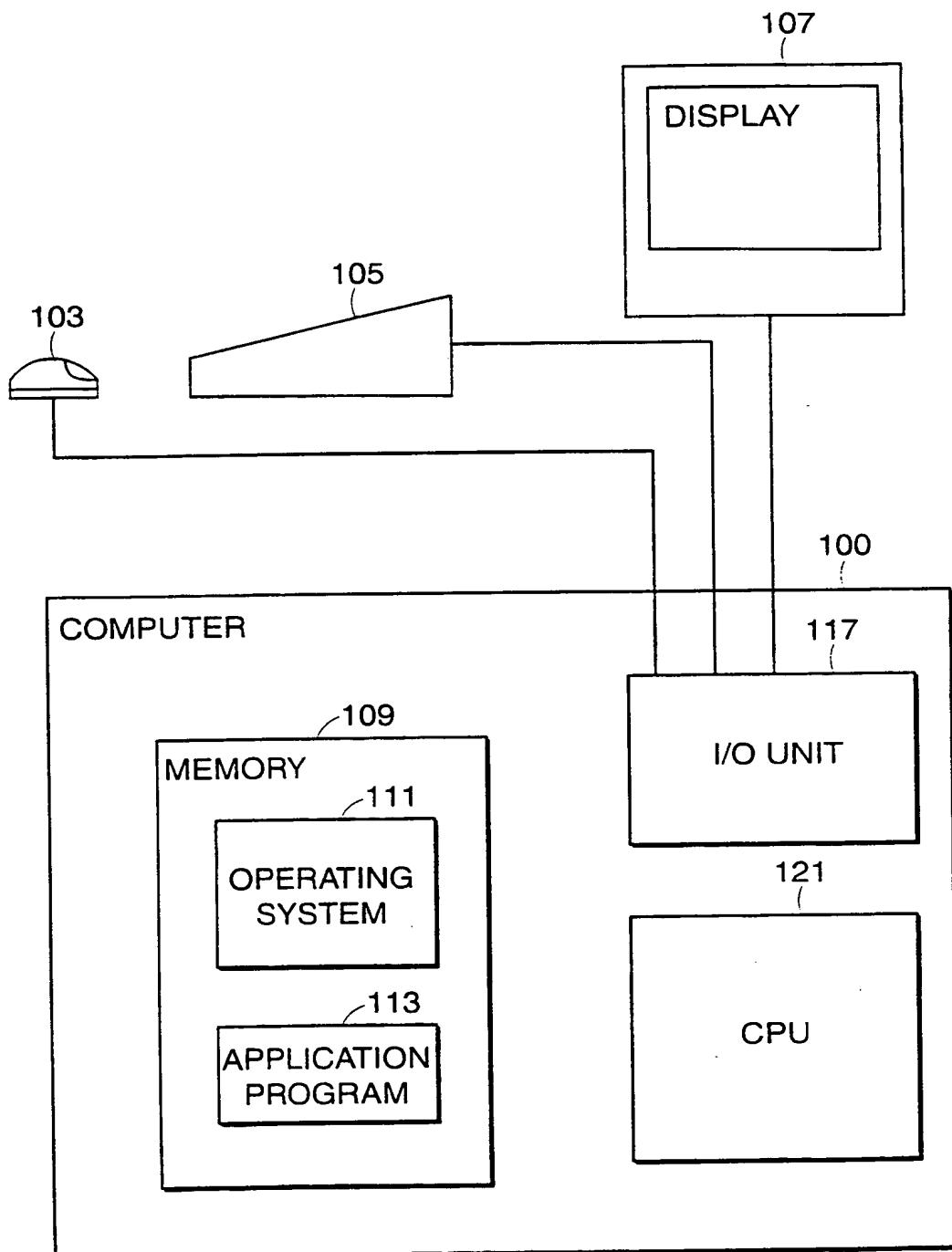
FIG. 1
(PRIOR ART)
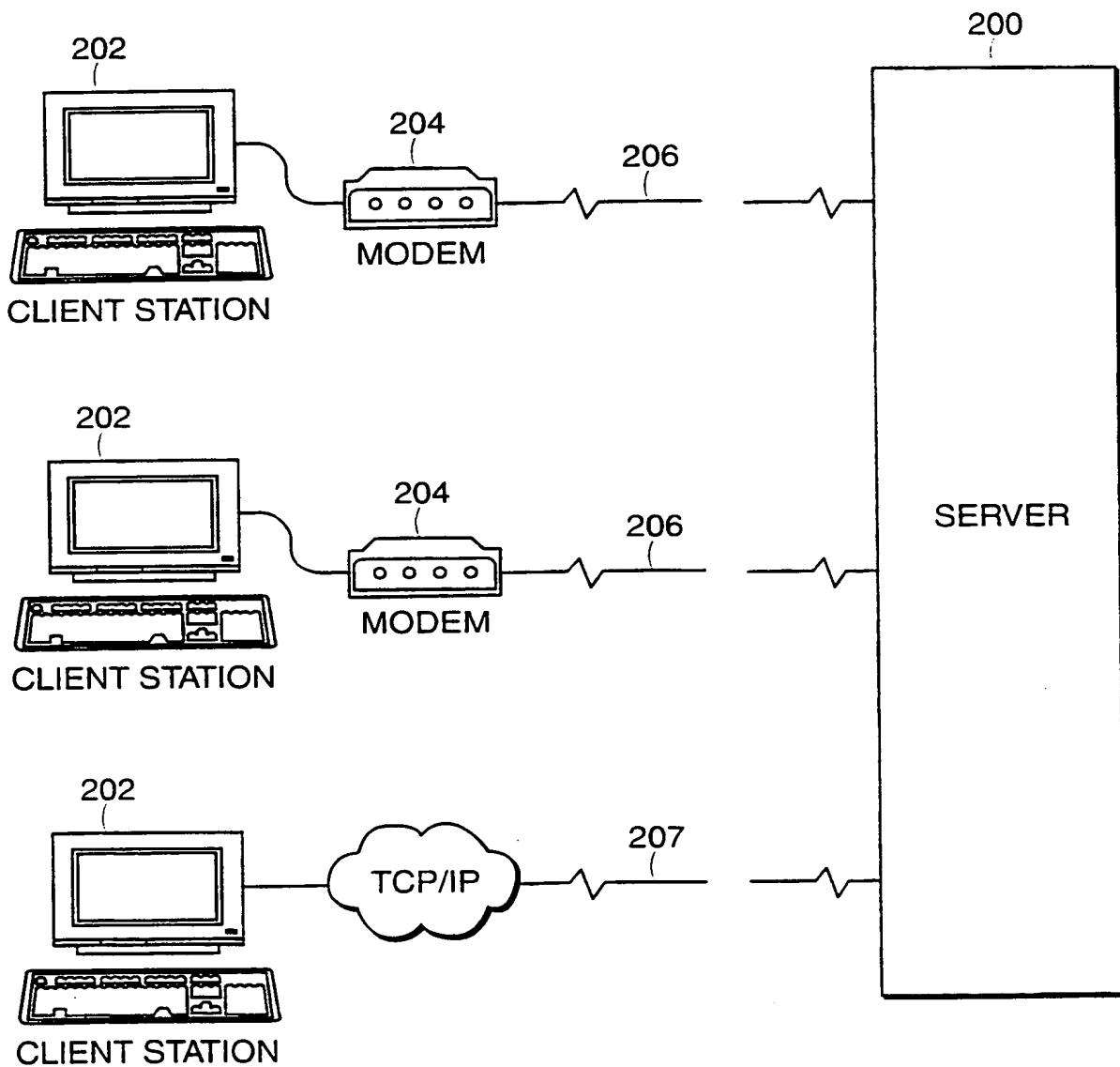
FIG. 2
(PRIOR ART)

Welcome to AOL.COM Netscape

File Edit View Go Communicator Help

Bookmarks   Go to:

http:\\www.page5.com
http:\\www.page4.com
http:\\www.page3.com
http:\\www.page2.com
http:\\www.page1.com

AOLoCO

America Online's In...

Operation De...
Fox, Day 2: G...
complete coverage
in My News

Weather...Stay
for the bowl games.
Plan travel online

Wine and Dine?
Grab and Go:
Buy great food gifts
for giving or eating

- Web Search
- Top News
- Stocks
- Weather
- Holiday Shopping
- Horoscopes
- AOL NetMail

YOU WANT
amazon.com

ALL
NEW
AOL 4.0

music
MUSIC BOULEVARD

$2.99
White Supplies Last
CLICK
HERE

d AOL 4.0

Top News Now: Clinton Appeals to Foreign Leaders

Web Centers
Do your homework
with help from
Research & Learn

Autos
Personal Finance

My News
Get free custom
news and weather
in My News

- Front Page
- Business

Shopping
Holidays '98
Find the Perfect Gift
and How to Shop
on AOL.COM

Pamper your pets:
Shop and save on
the Web.

Free Products
Try AOL Now!

Check your AOL
e-mail from the
Web!

- AOL NetMail

AOL NetFind

Find!

Kinds surf safely in
AOLNetFind Kids

Document Done

FIG. 3A

310
311
312
320
304
308
300
302
306

http://www.page6.com
http://www.page5.com
http://www.page4.com
http://www.page3.com
http://www.page2.com
http://www.page1.com

FIG. 3B

http://www.page3.com
http://www.page6.com
http://www.page5.com
http://www.page4.com
http://www.page2.com
http://www.page1.com

FIG. 3C
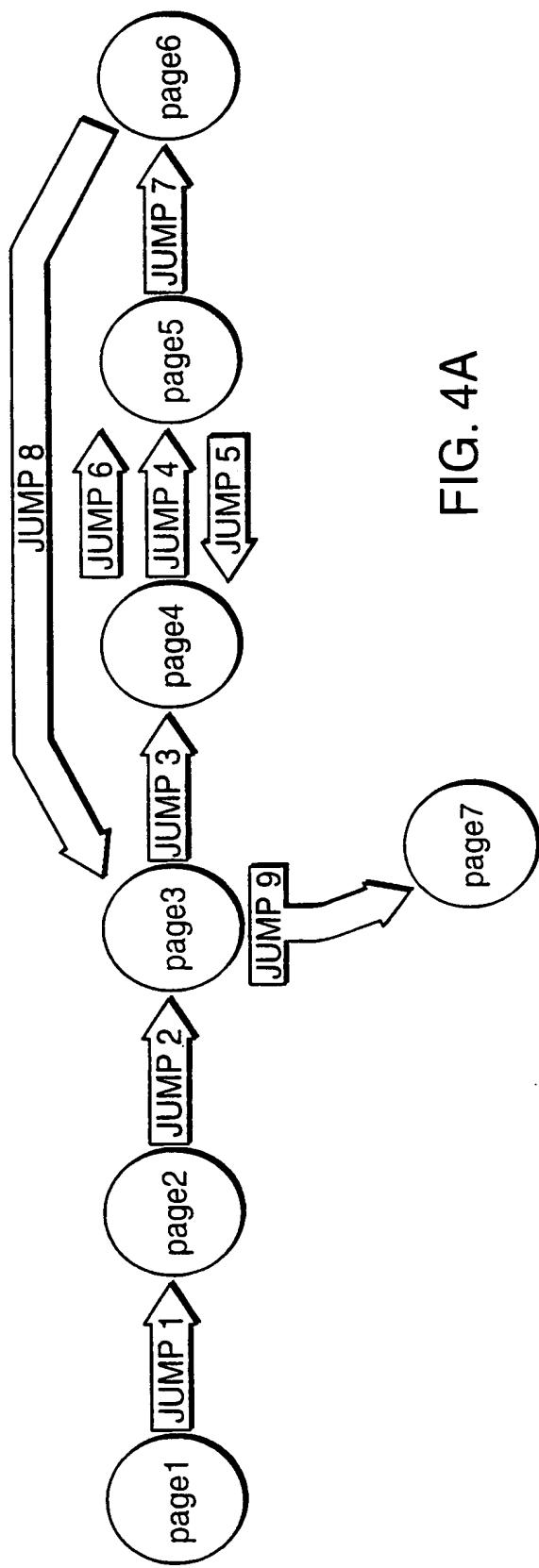
FIG. 4A

JUMP	CURRENT LOCATION	BACK BUTTON STATE	FORWARD BUTTON STATE
0	page1	EMPTY	EMPTY
1	page2	page1	EMPTY
2	page3	page2 > page1	EMPTY
3	page4	page3 > page2 > page1	EMPTY
4	page5	page4 > page3> page2 > page1	EMPTY
5	page4	page3 > page2 > page1	page5
6	page5	page4 > page3> page2 > page1	EMPTY
7	page6	page5 > page4 > page3> page2 > page1	EMPTY
8	page3	page2 > page1	page4 > page5 > page6
9	page7	page3 > page2 > page1	EMPTY

FIG. 4B
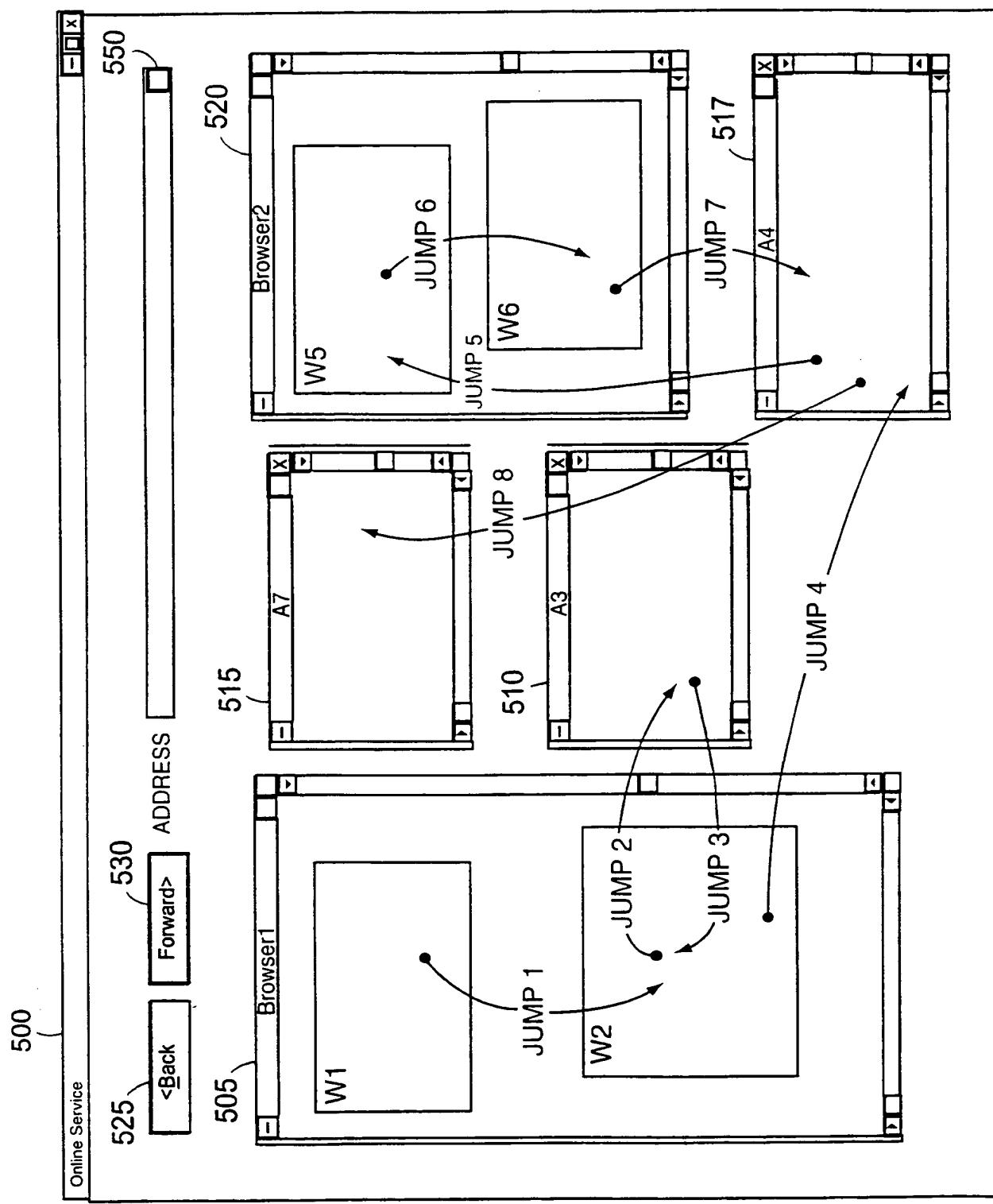
FIG. 5
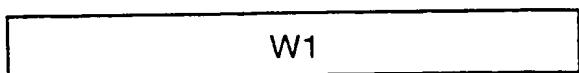
W1

FIG. 6A
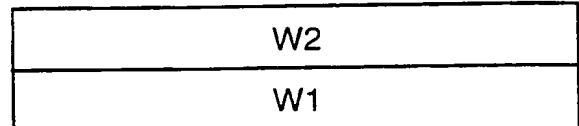
W2
W1

FIG. 6B
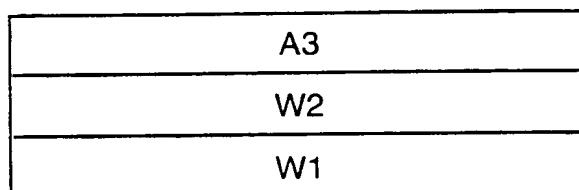
A3
W2
W1

FIG. 6C
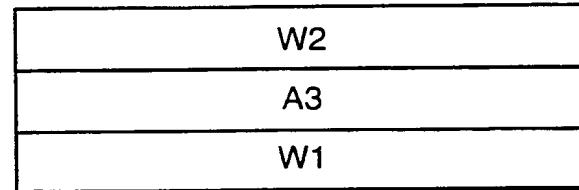
W2
A3
W1

FIG. 6D
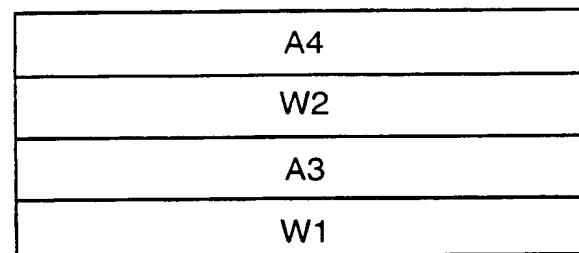
A4
W2
A3
W1

FIG. 6E

W5
A4
W2
A3
W1
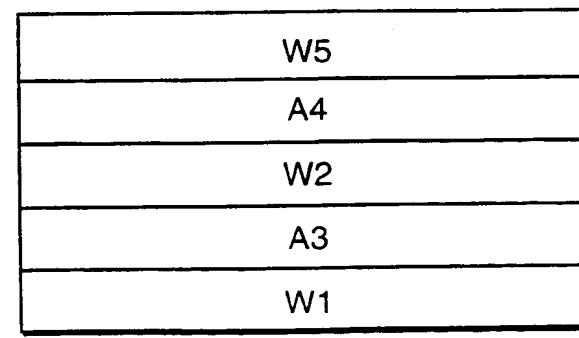
FIG. 6F

W6
W5
A4
W2
A3
W1

FIG. 6G

A4
W6
W5
W2
A3
W1

FIG. 6H

A7
A4
W6
W5
W2
A3
W1

FIG. 6I

| JUMP	CURRENT LOCATION	BACK BUTTON STATE	FORWARD BUTTON STATE
0	W1	EMPTY	EMPTY
1	W2	(BROWSER1: W1)	EMPTY
2	A3	(BROWSER1: W2 > W1)	EMPTY
3	W2	(BROWSER1: W1)	A3
4	A4	(BROWSER1: W2 > W1)	EMPTY
5	W5	A4 > (BROWSER1: W2 > W1)	EMPTY
6	W6	(BROWSER2: W5) > A4 > (BROWSER1: W2 > W1)	EMPTY
7	A4	(BROWSER1: W2 > W1)	(BROWSER2: W5 > W6)
8	A7	A4 > (BROWSER1: W2 > W1)	EMPTY

FIG. 7

MANAGE GLOBAL HISTORY LIST

801 — CLIENT RECEIVES "NEW TITLE"
OR "NEW ADDRESS"
NOTIFICATION

803 — IS
WINDOW A
BROWSER
?

NO

YES

805 — UPDATE VISIBLE ENTRY

806 — IS
BROWSER FINISHED
LOADING
?

NO

YES

807 — IS
ADDRESS
"NEW"
?

NO

809

REARRANGE HISTORY LIST
TO PUT ADDRESS AT TOP

YES

811 — INSERT NEW ENTRY AT
TOP OF HISTORY LIST

END

FIG. 8A

●   ●

(MANAGE GLOBAL BACK/FORWARD BUTTONS)

801—| CLIENT RECEIVES "NEW TITLE"
OR "NEW ADDRESS"
NOTIFICATION |

813 — IS WINDOW "NEW"? — YES

NO

817
| NO CHANGE IN CLIENT'S
GLOBAL BACK/FORWARD
STATE INFORMATION; USE
BROWSER'S BACK/
FORWARD INFORMATION |

815 — IS WINDOW A BROWSER ? — YES

NO

819 — HAS WINDOW'S ADDRESS CHANGED ? — NO

YES

821
| ADD NEW ENTRY TO
CLIENT'S BACK/FORWARD
STATE INFORMATION |

823 — IS CLIENT'S FORWARD STATE EMPTY ? — YES

NO

825
| PRUNE FORWARD
STATE INFORMATION |

FIG. 8B

(END)

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6   G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6   G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BIEBER M ET AL: "Fourth generation hypermedia: some missing links for the World Wide Web" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 31-65, XP002101194 ISSN 1071-5819 see page 53, line 30 - page 56, line 28 see figures 1-3	1-10, 12-16, 20-46
X	US 5 481 710 A (KEANE PATRICK J ET AL) 2 January 1996 see abstract see column 1, line 62 - column 2, line 54 see column 6, line 46 - column 8, line 9	42,44
A		1-41
	-/--	

X	Further documents are listed in the continuation of box C.	X	Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 April 1999	12/05/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Abbing, R

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	TAUSCHER L ET AL: "How people revisit web pages: empirical findings and implications for the design of history systems" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 97-137, XP002101195 ISSN 1071-5819 see page 101, line 30 - page 104, line 22 see page 124, line 15 - page 128, line 8 ---	1-46
A	BIEBER M: "Providing information systems with full hypermedia functionality" PROCEEDING OF THE TWENTY-SIXTH HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES (CAT. NO.93TH0501-7), WAILEA, HI, USA, 5-8 JAN. 1993, pages 390-400 vol.3, XP002101196 ISBN 0-8186-3230-5, 1993, Los Alamitos, CA, USA, IEEE, USA see page 393, column 2, line 7 - page 393, column 2, line 49 see page 395, column 2, line 5 - page 396, column 2, line 34 see figures 2,3 -----	1,2, 28-30, 42,44

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5481710	A	02-01-1996	NONE	

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

PHILLIPS. J.
FISH & RICHARDSON P.C.
601 Thirteenth Street, N.W.
Washington. DC 20005
ETATS-UNIS D'AMERIQUE

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing (day/month/year)	24. 03. 00

Applicant's or agent's file reference 06975/029WO4	**IMPORTANT NOTIFICATION**

International application No. PCT/US98/27465	International filing date *(day/month/year)* 23/12/1998	Priority date *(day/month/year)* 24/12/1997

Applicant
AMERICA ONLINE, INC. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

   The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

   Where a translation of the international application must be furnished to an elected Office. that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

   For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

   Docketed By Filling Secretary

   Due Date: _____

   Deadline: _____

   Initials: _____

   Book ted By Practice Systems
   Action Code: _Lull of Unity_
   3. 24. 00
   4 -8- 00
   4 -8- 00
   Initials: _W.L_

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Taylor. K Tel. +49 89 2399-2637

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 06975/029WO4	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US98/27465	International filing date *(day/month/year)* 23/12/1998	Priority date *(day/month/year)* 24/12/1997

International Patent Classification (IPC) or national classification and IPC G06F17/30

Applicant AMERICA ONLINE, INC. et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 11 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

I	☒	Basis of the report
II	☐	Priority
III	☒	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☒	Lack of unity of invention
V	☒	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
VI	☐	Certain documents cited
VII	☒	Certain defects in the international application
VIII	☒	Certain observations on the international application

Date of submission of the demand 22/07/1999	Date of completion of this report **24. 03. 00**
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer . Glaser. N Telephone No. +49 89 2399 8336

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-16   as originally filed

Claims, No.:

1-46   as originally filed

Drawings, sheets:

1-12   as originally filed

2. The amendments have resulted in the cancellation of:

☐ the description,   pages:

☐ the claims,   Nos.:

☐ the drawings,   sheets:

3. ☐   This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐   the entire international application.

☒   claims Nos. 2-46.

because:

☐ the said international application. or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1-46 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

   ☐ restricted the claims.

   ☐ paid additional fees.

   ☐ paid additional fees under protest.

   ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied and chose. according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1. 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

   see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

   ☒ all parts.

   ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1
Industrial applicability (IA)	Yes:	Claims	1
	No:	Claims	

2. Citations and explanations

   see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

   see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

   see separate sheet

The examination is being carried out on the application documents as **originally filed**.

Reference is made to the following documents :

D1:   BIEBER M ET AL: 'Fourth generation hypermedia: some missing links for the World Wide Web' INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47. no. 1, pages 31-65.

D2:   US-A-5 481 710 (KEANE PATRICK J ET AL) 2 January 1996

Section III (No opinion)

1.   In view of the lack of conciseness, the lack of clarity and the lack of unity (Sections IV and VII/VIII), it is not at present practicable to carry out a full examination of the application. The examination is not processed for **claims 2-46**.

2.1   Moreover, the applicant's attention is drawn to the fact that, as a consequence of Rule 66.8(a) PCT the examiner is not permitted to carry out any amendments under the PCT procedure, however minor these may be.

2.2   For sake of completeness, it is noted that claims directed to computer programs - such as claim 42 - are accepted for preliminary examination if the specific technical problem to be solved and the technical effects which are caused by the subject-matter as claimed are clearly identifiable, i.e. all of the technical features of the invention which lead to the technical effect are defined clearly in the claim.

An invention in the sense of the PCT must have a technical character; this is to say that it must relate to a certain technical field, solve a technical problem and be defined by technical features (Rules 5 and 6 PCT).

Section IV (Lack of unity)

1.   There does not appear to be a common inventive concept (Rule 13 PCT) linking the **independent claims 1, 28, 42 and 44.**

2.   The separate inventions of invention are:

First group (claims 1 and 44): a method or system of managing [navigation] information which is understood to maintain [navigation] information based on communicated state information between different contexts. The purpose and technical effect of navigation information being unclear, the method merely defines a **method for information management and communication**.

Second group (claim 28): a method of **managing a history list** which is understood to maintain a history-list based on state information, which is received from resources, and to present said history list. There is no notion of navigation information or navigation.

Third group (claim 42): a software application environment which is understood to **maintain** [global-context] **navigation information** based on communicated state information between an application and a plurality of resources, and to allow a user to **navigate among a plurality of resources** based on said global-context navigation information.

3.   The independent claims are directed to solve different technical problems and are not considered to be linked as to from a single general inventive concept (Rule 13.1 PCT). The lack of unity is believed to result from an unclear wording of the claims with respect to different and unclear essential features. As a consequence, the claims appear to define a different subject matter which is not linked to from a single general inventive concept.

Section V (Novelty, Inventive Step)

1.   **Claim 1,** as presently understood according to the objections raised in Section VII/VIII, defines a method of managing navigation information which comprises the following features :
   • "communicating state information [...]"
   • "maintaining [...] navigation information based on the communicated state information"
   Such a method is anticipated by almost any standard Internet browser which

comprises means for communicating information and a history database for maintaining navigation information. The subject matter of **claim 1** as presently formulated is therefore not novel over a standard Internet browser in the sense of Art. 33(2) PCT.

2. An **amended claim 1**, overcoming the clarity objections, would **not be novel over D1** in the sense of Art. 33(2) PCT.

2.1 D1 discloses the navigation based on backtracking and history information (D1: page 53-58) which additional functionalities for the access and display of information of database management system, decision support systems and expert systems (D1: page 57).

2.2 In Section 3.9, the notions of different working contexts are introduced, i.e. "a reader working on a particular task ... should be able to select this link ... can return readily to the point of departure and continue the original task". This operation is know as "backtracking" which returns the reader to a previously visited node in its current state.

2.3 In a hypermedia system, "each node is placed in a separate window" having each a separate context (D1: page 54, second paragraph); multiple applications run simultaneously, for example, email, spreadsheet, word processor, browser in different windows (D1: page 54, third paragraph). Backtracking returns the reader either to nodes or "tasks" in a reversed order, i.e. changing the focus to different windows, or is restricted among nodes within a <u>current</u> "task". These task and node based contexts are considered as local and global contexts which are defined in the claims.

2.4 Said nodes comprise state information and additional parametes, i.e. local context, and are put on a history list (D1: page 55, third paragraph; page 56, fourth paragraph). Users can browse these lists to select a desired node.

3. An **amended claim 1**, overcoming the clarity objections, would not be **novel over D2** in the sense of Art. 33(2) PCT; at least it would be not inventive over D2 in combination with general knowledge in the sense of Art. 33(3) PCT.

3.1 D2 discloses a method for managing navigation information about resources in the form of objects (D2: column 1, line 31 to column 2, line 17; column 6, lines 1-10). The method comprises a global redo/undo service which is separate from indidvidual applications, said service comprises a global undo data strucure and a global redo data structure and means for registering each new application with said global redo/undo service. Each time a user activates an undo/redo action, a packet including a reference to the application/object acted upon by said action is passed to said undo/redo service. D2 therefore addresses the notion of global and local context with respect to individual applications and anticipates the feature "global navigation information" of claims 1 and 44 and its equivalents "global-context history list" and "global history information" of the other two independent claims, from which a user selects the undo/redo operations.

3.2 It is underlined that there is no definition in the claims that a user operates the selection from <u>a single set</u> of navigational controls. However, if such a feature would be defined in the claims, this would not lead to an inventive step in the sense of Art. 33(3) PCT over D2.

D2 apparently discloses that applications include [each] a menu for selecting undo and redo actions, referring to D2, column 1, line 65ff. However, the further reading of the application does not necessarily limit D2 to this embodiment. It is further noted that it is an obvious step to extend the D2 method by a feature of a global redo/undo menu, starting from a method which has already a global redo/undo service and a global data structure comprising references to individual applications, in order to realise a more user-friendly working environment. Note also that it is an obvious alternative in such a system to have either application-specific menus or a global menu; the handling of the undo/redo operation is realised by the global undo/redo service of D2.

Section VII-VIII (Deficiencies in Form, Content, Clarity)

1.1 The independent method and device claims lack conciseness (Art. 6 PCT) and there appears to be no justification for more than one independent claim in each category (Rule 13.4 PCT) :

Claims 1 and 44 :

- no definition of the features "history list", "history of resources accessed by a user of the computer application", "presenting a global-context history list representive of an order .." which are defined in **claim 28**;

- no definition of the features "navigation mechanism that enables a user .. to move among resoures based on the global-context navigation information" and "an application capable of communicating with each of the resources" which are defined in **claim 42**;

Claim 28:

- no definition of the features "global context that can communicate with a plurality of resources", "communicating ... from .. local contexts to the global context", "maintaining of global navigation information" which are defined in **claims 1 and 44**;

- no definition of the features "navigation mechanism that enables a user .. to move among resoures based on the global-context navigation information" and "an application capable of communicating with each of the resources" which are defined in **claim 42**;

Claim 42:

- no definition of features "global context that can communicate with a plurality of resources", "communicating ... from .. local contexts to the global context", "history list", "history of resources accessed by a user of the computer application", "presenting a global-context history list representive of an order .." which are defined in **claim 28**;

1.2   There is no correspondence between the features of the **independent claims** and the claims do not comply with the requirement of conciseness (Art. 6 PCT).

2.1   **Claims 1, 28, 42 and 44** do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is clearly not defined. The claim attempts to define the subject-matter at hand of terms which do not have a precise technical meaning and which therefore obscure the claims (Guidelines C-III, 4.5b) :

- the feature "establishing a global context that can communicate with a pluarlity

of resources, each resources residing in a <u>local context</u>" are unclear; it is neither understood what should be the difference between a local and a global context nor what should be their technical effect; it is acknowledged that programs and applications may communicate, i.e. exchange data, but this is unclear with respect to contexts; moreover, generally speaking, the terms "local" and "global" having a relative, hence subjective meaning, if there is no definition to what they relate;

- the feature "state information" in claim 1 is unclear; it is not defined what kind of information said "state information" comprises, nor its relationship to the various contexts;

- the features "history list", "history of resources", "global-context history list", "global-context history list", "navigation information", "global navigation information", "global history information" are not understood; having regard to the description, they define the same feature, hence there is not justification for using a different wording. According to the requirements of the PCT, the same technical term shall be used through-out an application for defining each single feature. The several inconsistencies of terminology introduce a further lack of clarity in the claims.

2.2 The above cited features are therefore disregarded from the feature examination. The applicant is remined that according to Art. 6 and Rule 6.3, the meaning of a claim shall be clear from the wording of the claim alone (PCT/GL/III-4.2). Not complying with this requirement may introduce a refusal in a subsequent phase.

2.3 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT). The claims should be adapted accordingly.

3.1 A document reflecting the prior art described on **pages 1-4**, is not identified in the description (Rule 5.1(a)(ii) PCT).

3.2 The vague statement in the description on **page 16**, lines 18-19, implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them (see also the PCT Guidelines, PCT/GL/3 III, 4.3a).4 PCT). This statement should therefore have been deleted to remove this inconsistency.

3.3 Having regard to **page 15, lines 19-27**, it is noted that this paragraph does not comply with the requirement of Art. 6 PCT in that support for claims in the description must have technical character. The cited paragraph is vague and comprises definitions of assertive character which do not have sufficient technical character which would allow a skilled person to extend the particular teaching beyond the described embodiment (PCT/GL/III-6.3), i.e. to extend the method, which is defined for an internet browser to maintain global navigation information and to navigate based on this information, towards "virtually any user application using such a technique".

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

PHILLIPS. J.
FISH & RICHARDSON P.C.
601 Thirteenth Street. N.W.
Washington. DC 20005
ETATS-UNIS D'AMERIQUE

PCT

WRITTEN OPINION

(PCT Rule 66)

Docketed By Practice Systems
tion Code: _Written Opinion_
Date: _10-14-99_
Date: _1-14-00_
adline: _1-14-00_
Initials: _PB_
Record:

	Date of mailing (day/month/year)	1 4. 10. 99

Applicant's or agent's file reference
06975/029WO4

REPLY DUE **within 3 month(s)**
from the above date of mailing

International application No.	International filing date (day/month/year)	Priority date (day/month/year)
PCT/US98/27465	23/12/1998	24/12/1997

International Patent Classification (IPC) or both national classification and IPC	Docketed By Billing Secretary
G06F17/30	Due Date: 11-1-00
Applicant	Deadline: 11/6/00
AMERICA ONLINE. INC. et al.	Initials: JL

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

   I   ⊠   Basis of the opinion

   II   ☐   Priority

   III   ⊠   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   IV   ⊠   Lack of unity of invention

   V   ⊠   Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   VI   ☐   Certain document cited

   VII   ⊠   Certain defects in the international application

   VIII   ⊠   Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

   When?   See the time limit indicated above. The applicant may. before the expiration of that time limit, request this Authority to grant an extension. see Rule 66.2(d).

   How?   By submitting a written reply, accompanied, where appropriate. by amendments, according to Rule 66.3. For the form and the language of the amendments. see Rules 66.8 and 66.9.

   Also: For an additional opportunity to submit amendments. see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments. see Rule 66.4 bis. For an informal communication with the examiner. see Rule 66.6.

   If no reply is filed. the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 24/04/2000.

Name and mailing address of the international preliminary examining authority:	Authorized officer / Examiner
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Glaser. N
	Formalities officer (incl. extension of time limits) Schall. H Telephone No. +49 89 2399 2647

Form PCT/IPEA/408 (cover sheet) (January 1994)

I. Basis of the opinion

1. This opinion has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".)*:

Description, pages:

1-16   as originally filed

Claims, No.:

1-46   as originally filed

Drawings, sheets:

1-12   as originally filed

2. The amendments have resulted in the cancellation of:

☐   the description,   pages:

☐   the claims,   Nos.:

☐   the drawings,   sheets:

3. This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been and will not be examined in respect of:

☐   the entire international application.

☒   claims Nos. 2-27, 29-41, 45-46.

because:

☐   the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1-41, 44-46 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

IV. Lack of unity of invention

1. In response to the invitation (Form PCT/IPEA/405) to restrict or pay additional fees. the applicant has:

☐ restricted the claims.

☐ paid additional fees.

☐ paid additional fees under protest.

☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose, according to Rule 68.1. not to invite the applicant to restrict or pay additional fees:

see separate sheet

3. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this opinion:

☐ all parts.

☒ the parts relating to claims Nos. 1-41, 44-46.

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1. 28. 44 (no)
Inventive step (IS)	Claims	1. 28. 44 (no)
Industrial applicability (IA)	Claims	1. 28. 44 (yes)

2. Citations and explanations

    see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

    see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

    see separate sheet

The examination is being carried out on the application documents as **originally filed**.

Reference is made to the following documents :
D1: BIEBER M ET AL: 'Fourth generation hypermedia: some missing links for the World Wide Web'
INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS.
UK. vol. 47. no. 1, pages 31-65.
D2: US-A-5 481 710 (KEANE PATRICK J ET AL) 2 January 1996

Section III (No opinion)

1. In view of the lack of conciseness, the lack of clarity and the lack of unity, it is not at present practicable to carry out a full examination of the application. The examination of **claims 2-27, claims 29-41 and claims 45-46** is postponed until the present objections are overcome.

2. The applicant is therefore requested to file suitable amendments upon which the further prosecution of the application is to be based, and to state clearly the difference of the claimed invention to cited prior art documents.

Section IV (Lack of unity)

1. There does not appear to be a single inventive concept (Rule 13 PCT) linking the independent **claims 1 and 44** (first group), **claim 28** (second group) and **claim 42** (third group).

2. It is observed that both groups concern two different technical aspects :
    *   first group : a method or system of **managing navigation information**;
    *   second group : a method of **managing a history list**;
    *   third group : a software application for the **management of resources**.
    Hence, they do not appear to be so linked as to form a single general inventive concept (Rule 13.1 PCT).

Section V (Novelty, Inventive Step)

1.1   **Claim 1,** as presently understood according to the objections raised in Section VII/VIII, defines a method of managing navigation information which comprises the following features :
   * "communicating information ..."
   * "maintaining navigation information ..."

Such a method is anticipated by almost any standard internet browser which comprises means for communicating information and a history database for maintaining navigation information. The subject matter of **claim 1** as presently formulated is therefore not novel over such a standard internet browser in the sense of Art. 33(2) PCT.

1.2   The same objections apply to **claim 44** which is therefore also not novel.

1.3   **Claim 28,** as understood according to the objections raised in Section VII/VIII, defines a method of managing a history list comprising the following features :
   * "receiving information ..."
   * "maintaining a history of resources ..."
   * "presenting a history list ..."

Such a method is anticipated by almost any standard internet browser which comprises means for receiving information about resources, maintaining a history database of resources and for presenting a history list. The subject matter of **claim 28** as presently formulated is therefore not novel over such a standard internet browser in the sense of Art. 33(2) PCT.

2.   The applicant is invited to the difference of the claimed invention to D1 or D2 which are considered as to be novelty destroying.

2.1   D1 discloses the navigation based on backtracking and history information (D1: page 53-58) which additional functionalities for the access and display of information of database management system, decision support systems and expert systems (D1: page 57).

2.2   The independent claims are so broadly defined that the claimed subject matter is anticipated by D2 which discloses a method for managing navigation information about resources in the form of objects, said navigation information comprises the position of the object in order to be able to navigate from one object to another object (D2: table II). A history list is defined with actions for undoing or redoing said actions (D2: column 1, lines 30-60).

Section VII-VIII (Deficiencies in Form, Content, Clarity)

1.1   The independent method and device claims lack conciseness (Art. 6 PCT) and there appears to be no justification for more than one independent claim in each category (Rule 13.4 PCT).

1.2   There is no correspondence between the features of the independent method **claims 1 and 28**. Both are understood to define a method of managing information. Claim 1 defines the "communicating of state information" and the "maintaining of global navigation information" which are not defined in claim 28; on the other hand, claim 28 defines the "maintaining of resources

1.3   Having regard to the independent device **claim 44**, it is noted that claim 44 corresponds to claim 1 which would suggest that the features of claim 28 are merely optional. Concluding, it is difficult to determine what are the essential features of the claimed invention.

2.1   Having regard to the claims, several inconsistencies of terminology arise which obscure the subject matter for which protection is sought. This objection applies, for example, to claim 28 where different terms are used for defining the same feature, i.e. "history list", "history of resources" and "global-context history"; also to claim 44, where there is apparently no difference between the feature "global navigation information" and "history information", hence "history list".

It is noted that the same technical term shall be used through-out an application for defining each single feature.

2.2   **Claims 1, 28 and 44** do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is clearly not defined. The claim attempts to define the subject-matter at hand of terms which do not have a precise technical meaning and which therefore obscure the claim (Guidelines C-III, 4.5b) :

- the feature "establishing a <u>global context that can communicate</u> with a pluarlity of resources, each resources residing in a <u>local context</u>" in claim 1; it not clear what should be understood by global and local context; moreover, the difference between both and their relationship to said resources is unclear; same considerations apply to claims 28 and 44;
- the feature "state information" in claim 1 is unclear; it is not defined what kind of information said "state information" comprises, nor its relationship to the various contexts;
- the features "history of resources" and "global-context history list" in claim 28 are unclear;
- the feature "global-context history list" in claim 28 is not understood;

The above features are therefore disregarded from feature examination.

2.3   The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT). The claims should be adapted accordingly.

3.1   A document reflecting the prior art described on **pages 1-4**, is not identified in the description (Rule 5.1(a)(ii) PCT).

3.2   The vague statement in the description on **page 16**, lines 18-19, implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them (see also the PCT Guidelines, PCT/GL/3 III, 4.3a).4 PCT). This statement should therefore be deleted to remove this inconsistency.

Other matters

1.   In order to facilitate the examination of the conformity of the amended application with the requirements of Art. 34(2) PCT, the applicant is requested to clearly identify

the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT).

2.   If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the applicant as filed. The applicant is requested to file amendments by way of replacement pages in the manner stipulated by Rule 66.8(a) PCT. Fair copies of the amendments should be filed in triplicate.

3.   Moreover, the applicant's attention is drawn to the fact that, as a consequence of Rule 66.8(a) PCT the examiner is not permitted to carry out any amendments under the PCT procedure, however minor these may be.

4.   For sake of completeness, it is noted that claims directed to computer programs are accepted for preliminary examination if the specific technical problem to be solved and the **technical effects** which are caused by the subject-matter as claimed are clearly identifiable, i.e. all of the **technical features** of the invention **which lead to the technical effect** are defined clearly in the claim.

An invention in the sense of the PCT must have a technical character; this is to say that it must relate to a certain technical field, solve a technical problem and be defined by technical features (Rules 5 and 6 PCT).

Correspondence with the EPO on PCT Chapter II demands

In order to ensure that your PCT Chapter II demand is dealt with as promptly as possible you are requested to use the enclosed self-adhesive labels with any correspondence relating to the demand sent to the Munich Office.

One of these labels should be affixed to a prominent place in the upper part of the letter or form etc. which you are filing.

●

IN THE EUROPEAN PATENT OFFICE

Applicant : America Online, Inc. et al.
Appln. No.: PCT/US98/27465
Int'l Filing Date: 12/23/1998
Priority Date: 12/24/1997
Title : MANAGING NAVIGATION AND HISTORY INFORMATION

European Patent Office
PCT/ International Preliminary Examining Authority
D-80298 Munich, GERMANY

Attention: N. Glaser
Authorized officer/Examiner

RESPONSE TO WRITTEN OPINION

Sir:

The following remarks are respectfully submitted in response to the Written Opinion mailed October 14, 1999.

REMARKS

Reconsideration is requested in view of the following remarks. Claims 1-46 are pending in the present application, but only claims 1, 28, 42, and 44 have been examined. Claims 1, 28, 42, and 44 are independent.

SECTION IV

In Section IV of the Written Opinion, the Examiner alleges that "[t]here does not appear to be a single inventive concept (Rule 13 PCT) linking the independent claims 1 and 44 (first group), claim 28 (second group) and claim 42 (third group)" because the first group concerns a method or system of managing navigational information, the second group concerns a method of managing a history list, and the third group concerns a software application for the management of resources. The Applicant respectfully traverses this allegation, but notes with appreciation the Examiner's decision to carry out preliminary examination of claims 1, 28, 42, and 44.

SECTION V

In Section V of the Written Opinion, the Examiner alleges that the subject matter of independent claims 1 and 44 are not novel, as required by PCT Article 33(2), over any

standard internet browser because such a browser includes "means for communicating information and a history database for maintaining navigation information." The Examiner also alleges that the subject matter of claim 28 is not novel over any standard internet browser because such a browser includes "means for receiving information about resources, maintaining a history database of resources and for presenting a history list."

The Applicant respectfully traverses these allegations. As explained on page 9 of the application, "[A] browser in a conventional system is unaware of the existence of, and unable to coordinate with, other windows and/or resources that are open and being used concurrently." Application, p. 9, ll. 6-8. As a result, the history and navigational information stored in the standard browser, cited by the Examiner, "is limited to its own local context." Id. at ll. 10-11. In contrast, the software of claim 44, establishes a "global context" and maintains "global navigation or history information, or both, based on . . . communicated state information." Method claim 1 similarly recites the steps of establishing a "global context" and maintaining "global navigation or history information, or both, based on . . . communicated state information." Claim 28 recites the step of "presenting a global-context history list representative of an order in which . . . resources were accessed." Because the ability to "maintain[] navigation and history information in a global context – that is, with knowledge of, and the potential ability to coordinate and move between all resources accessed by the user," Application, p. 9, ll. 12-14, is not present in any standard internet browser, the subject matter of claims 1, 28, and 44 is novel in view of such a browser.

In Section V of the Written Opinion, the Examiner also considers reference D1 (International Journal of Human-Computer Studies article by Bieber M. et al.) and reference D2 (US-A-5 481 710) to be "novelty destroying" with respect to independent claims 1, 28, 42, and 44. According to the Examiner, D1 discloses "navigation based on backtracking and history information (D1: page[s] 53-58) which additional functionalities for the access and display of information of database management system[s], decision support systems and expert systems (D1: page 57)." The Examiner reads D2 to disclose "a method for managing navigation information about resources in the form of objects,"

Applicant : America Onlin., inc. et al.   Attorney's L._ket No.: 06975-029WO4
Serial No. : PCT/US98/27465
International Filing Date: 12/23/1998
Priority Date: 12/24/1997
Page   : 3

in which the navigation information includes the "position of the object in order to be able to navigate from one object to another object (D2: table II)." According to the Examiner, D2 also discloses a history list, "defined with actions for undoing and redoing said actions (D2: column 1, lines 30-60)."

The Applicant respectfully traverses the allegations set forth by the Examiner. The Applicant submits that each of the independent claims recites a combination of features that is neither taught nor suggested by reference D1 or reference D2. For example, neither D1 nor D2 discloses a system that maintains "global navigation or history information," as recited in claims 1 and 44, presents a "global-context history list," as recited in claim 28, or maintains "global-context navigation information," as recited in claim 42.

The backtracking and history information disclosed in D1, pages 53-58, is local information only, like the history and navigational information stored in the standard internet browser discussed above. See Application, p. 9, ll. 3-4 ("In conventional systems, each resource (e.g., Browser 1) may maintain its own local set of history and navigation information independently of the other resources."). Therefore, D1 is not "novelty destroying" since its system does not maintain "global navigation or history information," present a "global-context history list," or maintain "global-context navigation information."

D2 similarly fails to disclose, teach or suggest a system that maintains "global navigation or history information," presents a "global-context history list," or maintains "global-context navigation information." The system of D2 "establishes an undo stack and a redo stack for each registered application." Col. 3, ll. 29-31 (emphasis added). Table II, cited by the Examiner, shows the UNDO STACK established for a single application, i.e., "a text editor of the type shown in window 15 of FIGS. 1 and 2." Col. 5, ll. 35-36. Table I, in contrast, shows the UNDO STACK for a separate application, i.e., "a drawing program, such as that shown in window 13 of FIGS. 1 and 2." Col. 5, ll. 1-2. The undo/redo service of D2 does not present the user the option of selecting from the packets established for all registered applications. Thus, D2 fails to disclose, teach, or

suggest that "a user can operate a single set of navigational controls (e.g., Back/Forward buttons, drop-down history list) to navigate among separate and independent resources (applications, windows, etc.) that have no knowledge of each other's state or existence," as he can do "with a global context for history and navigation information." Application, p. 7, ll. 19-23. Therefore, D2 is not novelty destroying.

Regarding dependent claims 2-27, 29-41, and 45-46, the Applicant submits that these claims contain patentable subject matter by virtue of their dependency on patentable independent claims as well as on their own merits.

In view of the above, the Applicant requests favorable reconsideration and an indication that the presented claims recite patentable subject matter.

SECTIONS VII-VIII

The Examiner has alleged that claims 1, 28, and 44 do not meet the requirements of PCT Article 6 because their subject matter is not clearly defined. According to the Examiner, the terms "global context," "local context," "state information," "history of resources," and "global-context history list" do not have precise technical meaning, which serves to obscure the claims. Contrary to the Examiner's assertion, the Applicant respectfully submits that the claims as a whole are clear, concise, and fully supported in the specification and drawings, in accordance with PCT Article 6. The Applicant respectfully directs the Examiner to the Detailed Description section of the application, which lends clarity to these and other claim terms. See, e.g., Application, p. 8, ll. 22-23 (resources), p. 9, ll. 3-4 (local set of history), p. 9, ll. 12-14 (global context), p. 7, ll. 3-6 (state information). The Examiner has also identified other alleged deficiencies in form, content, and clarity, which do not affect the patentability of the claims. Although the Applicant disagrees with these allegations, the Applicant will address any deficiencies once agreement is reached regarding the novelty of the claimed subject matter.

CONCLUSION

For at least the above reasons, the Applicant submits that the application is in proper form and claims 1-46 recite patentable subject matter. Accordingly, favorable consideration is requested.

Please apply any charges, or any credits, to Deposit Account 06-1050.

Respectfully submitted,

Date: January 12, 2000
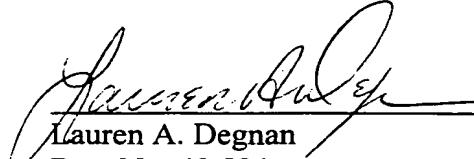
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 06975/029WO4	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US98/27465	International filing date *(day/month/year)* 23/12/1998	Priority date *(day/month/year)* 24/12/1997

International Patent Classification (IPC) or national classification and IPC
G06F17/30

Applicant
AMERICA ONLINE, INC. et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 11 sheets, including this cover sheet.

    ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

    These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

    I   ☒ Basis of the report
    II   ☐ Priority
    III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
    IV   ☒ Lack of unity of invention
    V   ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
    VI   ☐ Certain documents cited
    VII ☒ Certain defects in the international application
    VIII ☒ Certain observations on the international application

Date of submission of the demand 22/07/1999	Date of completion of this report 24.03.00
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Glaser, N Telephone No. +49 89 2399 8336

Form PCT/IPEA/409 (cover sheet) (January 1994)

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

   Description, pages:

   1-16   as originally filed

   Claims, No.:

   1-46   as originally filed

   Drawings, sheets:

   1-12   as originally filed

2. The amendments have resulted in the cancellation of:

   ☐   the description,   pages:
   ☐   the claims,   Nos.:
   ☐   the drawings,   sheets:

3. ☐   This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

   ☐   the entire international application.

   ☒   claims Nos. 2-46.

because:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US98/27465

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1-46 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

   ☐ restricted the claims.

   ☐ paid additional fees.

   ☐ paid additional fees under protest.

   ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

   see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

   ☒ all parts.

   ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1
Industrial applicability (IA)	Yes:	Claims	1
	No:	Claims	

2. Citations and explanations

   see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

   see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

   see separate sheet

The examination is being carried out on the application documents as **originally filed**.

Reference is made to the following documents :

D1:   BIEBER M ET AL: 'Fourth generation hypermedia: some missing links for the World Wide Web'
INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS,
UK, vol. 47, no. 1, pages 31-65.

D2:   US-A-5 481 710 (KEANE PATRICK J ET AL) 2 January 1996

Section III (No opinion)

1.   In view of the lack of conciseness, the lack of clarity and the lack of unity (Sections
IV and VII/VIII), it is not at present practicable to carry out a full examination of the
application. The examination is not processed for **claims 2-46**.

2.1   Moreover, the applicant's attention is drawn to the fact that, as a consequence of
Rule 66.8(a) PCT the examiner is not permitted to carry out any amendments under
the PCT procedure, however minor these may be.

2.2   For sake of completeness, it is noted that claims directed to computer programs -
such as claim 42 - are accepted for preliminary examination if the specific technical
problem to be solved and the technical effects which are caused by the subject-
matter as claimed are clearly identifiable, i.e. all of the technical features of the
invention which lead to the technical effect are defined clearly in the claim.

An invention in the sense of the PCT must have a technical character; this is to say
that it must relate to a certain technical field, solve a technical problem and be
defined by technical features (Rules 5 and 6 PCT).

Section IV (Lack of unity)

1.   There does not appear to be a common inventive concept (Rule 13 PCT) linking the
independent claims 1, 28, 42 and 44.

2.   The separate inventions of invention are:

First group (claims 1 and 44): a method or system of managing [navigation] information which is understood to maintain [navigation] information based on communicated state information between different contexts. The purpose and technical effect of navigation information being unclear, the method merely defines a **method for information management and communication**.

Second group (claim 28): a method of **managing a history list** which is understood to maintain a history-list based on state information, which is received from resources, and to present said history list. There is no notion of navigation information or navigation.

Third group (claim 42): a software application environment which is understood to **maintain** [global-context] **navigation information** based on communicated state information between an application and a plurality of resources, and to allow a user to **navigate among a plurality of resources** based on said global-context navigation information.

3.   The independent claims are directed to solve different technical problems and are not considered to be linked as to from a single general inventive concept (Rule 13.1 PCT). The lack of unity is believed to result from an unclear wording of the claims with respect to different and unclear essential features. As a consequence, the claims appear to define a different subject matter which is not linked to from a single general inventive concept.

Section V (Novelty, Inventive Step)

1.   **Claim 1,** as presently understood according to the objections raised in Section VII/VIII, defines a method of managing navigation information which comprises the following features :
   •   "communicating state information [...]"
   •   "maintaining [...] navigation information based on the communicated state information"
   Such a method is anticipated by almost any standard Internet browser which

comprises means for communicating information and a history database for maintaining navigation information. The subject matter of **claim 1** as presently formulated is therefore not novel over a standard Internet browser in the sense of Art: 33(2) PCT.

2. An **amended claim 1**, overcoming the clarity objections, would **not be novel over D1** in the sense of Art. 33(2) PCT.

2.1 D1 discloses the navigation based on backtracking and history information (D1: page 53-58) which additional functionalities for the access and display of information of database management system, decision support systems and expert systems (D1: page 57).

2.2 In Section 3.9, the notions of different working contexts are introduced, i.e. "a reader working on a particular task ... should be able to select this link ... can return readily to the point of departure and continue the original task". This operation is know as "backtracking" which returns the reader to a previously visited node in its current state.

2.3 In a hypermedia system, "each node is placed in a separate window" having each a separate context (D1: page 54, second paragraph); multiple applications run simultaneously, for example, email, spreadsheet, word processor, browser in different windows (D1: page 54, third paragraph). Backtracking returns the reader either to nodes or "tasks" in a reversed order, i.e. changing the focus to different windows, or is restricted among nodes within a <u>current</u> "task". These task and node based contexts are considered as local and global contexts which are defined in the claims.

2.4 Said nodes comprise state information and additional parametes, i.e. local context, and are put on a history list (D1: page 55, third paragraph; page 56, fourth paragraph). Users can browse these lists to select a desired node.

3. An **amended claim 1**, overcoming the clarity objections, would not be **novel over D2** in the sense of Art. 33(2) PCT; at least it would be not inventive over D2 in combination with general knowledge in the sense of Art. 33(3) PCT.

3.1 D2 discloses a method for managing navigation information about resources in the form of objects (D2: column 1, line 31 to column 2, line 17; column 6, lines 1-10). The method comprises a global redo/undo service which is separate from indidvidual applications, said service comprises a global undo data strucure and a global redo data structure and means for registering each new application with said global redo/undo service. Each time a user activates an undo/redo action, a packet including a reference to the application/object acted upon by said action is passed to said undo/redo service. D2 therefore addresses the notion of global and local context with respect to individual applications and anticipates the feature "global navigation information" of claims 1 and 44 and its equivalents "global-context history list" and "global history information" of the other two independent claims, from which a user selects the undo/redo operations.

3.2 It is underlined that there is no definition in the claims that a user operates the selection from <u>a single set</u> of navigational controls. However, if such a feature would be defined in the claims, this would not lead to an inventive step in the sense of Art. 33(3) PCT over D2.

D2 apparently discloses that applications include [each] a menu for selecting undo and redo actions, referring to D2, column 1, line 65ff. However, the further reading of the application does not necessarily limit D2 to this embodiment. It is further noted that it is an obvious step to extend the D2 method by a feature of a global redo/undo menu, starting from a method which has already a global redo/undo service and a global data structure comprising references to individual applications, in order to realise a more user-friendly working environment. Note also that it is an obvious alternative in such a system to have either application-specific menus or a global menu; the handling of the undo/redo operation is realised by the global undo/redo service of D2.

Section VII-VIII (Deficiencies in Form, Content, Clarity)

1.1 The independent method and device claims lack conciseness (Art. 6 PCT) and there appears to be no justification for more than one independent claim in each category (Rule 13.4 PCT) :

Claims 1 and 44 :

*   no definition of the features "history list", "history of resources accessed by a user of the computer application", "presenting a global-context history list representive of an order .." which are defined in **claim 28**;

*   no definition of the features "navigation mechanism that enables a user .. to move among resoures based on the global-context navigation information" and "an application capable of communicating with each of the resources" which are defined in **claim 42**;

Claim 28:

*   no definition of the features "global context that can communicate with a plurality of resources", "communicating ... from .. local contexts to the global context", "maintaining of global navigation information" which are defined in **claims 1 and 44**;

*   no definition of the features "navigation mechanism that enables a user .. to move among resoures based on the global-context navigation information" and "an application capable of communicating with each of the resources" which are defined in **claim 42**;

Claim 42:

*   no definition of features "global context that can communicate with a plurality of resources", "communicating ... from .. local contexts to the global context", "history list", "history of resources accessed by a user of the computer application", "presenting a global-context history list representive of an order .." which are defined in **claim 28**;

1.2   There is no correspondence between the features of the **independent claims** and the claims do not comply with the requirement of conciseness (Art. 6 PCT).

2.1   **Claims 1, 28, 42 and 44** do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is clearly not defined. The claim attempts to define the subject-matter at hand of terms which do not have a precise technical meaning and which therefore obscure the claims (Guidelines C-III, 4.5b) :

*   the feature "establishing a <u>global context that can communicate</u> with a pluarlity

of resources, each resources residing in a <u>local context</u>" are unclear; it is neither understood what should be the difference between a local and a global context nor what should be their technical effect; it is acknowledged that programs and applications may communicate, i.e. exchange data, but this is unclear with respect to contexts; moreover, generally speaking, the terms "local" and "global" having a relative, hence subjective meaning, if there is no definition to what they relate;

- the feature "state information" in claim 1 is unclear; it is not defined what kind of information said "state information" comprises, nor its relationship to the various contexts;

- the features "history list", "history of resources", "global-context history list", "global-context history list", "navigation information", "global navigation information", "global history information" are not understood; having regard to the description, they define the same feature, hence there is not justification for using a different wording. According to the requirements of the PCT, the same technical term shall be used through-out an application for defining each single feature. The several inconsistencies of terminology introduce a further lack of clarity in the claims.

2.2 The above cited features are therefore disregarded from the feature examination. The applicant is remined that according to Art. 6 and Rule 6.3, the meaning of a claim shall be clear from the wording of the claim alone (PCT/GL/III-4.2). Not complying with this requirement may introduce a refusal in a subsequent phase.

2.3 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT). The claims should be adapted accordingly.

3.1 A document reflecting the prior art described on **pages 1-4**, is not identified in the description (Rule 5.1(a)(ii) PCT).

3.2 The vague statement in the description on **page 16**, lines 18-19, implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them (see also the PCT Guidelines, PCT/GL/3 III, 4.3a).4 PCT). This statement should therefore have been deleted to remove this inconsistency.

3.3   Having regard to **page 15, lines 19-27**, it is noted that this paragraph does not comply with the requirement of Art. 6 PCT in that support for claims in the description must have technical character. The cited paragraph is vague and comprises definitions of assertive character which do not have sufficient technical character, which would allow a skilled person to extend the particular teaching beyond the described embodiment (PCT/GL/III-6.3), i.e. to extend the method, which is defined for an internet browser to maintain global navigation information and to navigate based on this information, towards "virtually any user application using such a technique".

JC.P

● TENT COOPERATION TRE ● Y

PCT

From the INTERNATIONAL BUREAU

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:
PHILLIPS, John, C.
Fish & Richardson P.C.
601 Thirteenth Street, N.W.
Washington, DC 20005
ÉTATS-UNIS D'AMÉRIQUE

RECEIVED

* No Docketing Required *

Reviewed By Practice Systems
Initials: _____

Reviewed By Billing Secretary
Initials: _____

Date of mailing (day/month/year)	JUL 1 9 1999
08 July 1999 (08.07.99)	

Applicant's or agent's file reference	FISH & RICHARDSON, P.C. WASHINGTON, D.C. PRACTICE SYSTEMS	IMPORTANT NOTICE
06975/029WO4		

International application No.	International filing date (day/month/year)	Priority date (day/month/year)
PCT/US98/27465	23 December 1998 (23.12.98)	24 December 1997 (24.12.97)

Applicant
AMERICA ONLINE, INC. et al

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:

   AU,CN,EP,IL,JP,KP,KR,US

   In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

   AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CU,CZ,DE,DK,EA,EE,ES,FI,GB,GD,GE,GH,GM,HR,HU,
   ID,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,PT,RO,RU,SD,
   SE,SG,SI,SK,SL,TJ,TM,TR,TT,UA,UG,UZ,VN,YU,ZW

   The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on

   08 July 1999 (08.07.99) under No. WO 99/34306

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, **a demand for international preliminary examination** must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the **national phase**, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer
	J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INFORMATION CONCERNING ELECTED OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

From the INTERNATIONAL BUREAU

To:

PHILLIPS, John, C.
Fish & Richardson P.C.
601 Thirteenth Street, N.W.
Washington, DC 20005
ÉTATS-UNIS D'AMÉRIQUE

Date of mailing (day/month/year)
14 September 1999 (14.09.99)

Applicant's or agent's file reference	IMPORTANT INFORMATION
06975/029WO4	

International application No.	International filing date (day/month/year)	Priority date (day/month/year)
PCT/US98/27465	23 December 1998 (23.12.98)	24 December 1997 (24.12.97)

Applicant
AMERICA ONLINE, INC. et al

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

   AP :GH,GM,KE,LS,MW,SD,SZ,UG,ZW
   EP :AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE
   National :AU,BG,BR,CA,CN,CZ,DE,GB,IL,JP,KP,KR,MN,NO,NZ,PL,RO,RU,SE,SK,US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

   EA :AM,AZ,BY,KG,KZ,MD,RU,TJ,TM
   OA :BF,BJ,CF,CG,CI,CM,GA,GN,GW,ML,MR,NE,SN,TD,TG
   National :AL,AM,AT,AZ,BA,BB,BY,CH,CU,DK,EE,ES,FI,GD,GE,GH,GM,HR,HU,ID,IN,
   IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MW,MX,PT,SD,SG,SI,SL,TJ,TM,TR,
   TT,UA,UG,UZ,VN,YU,ZW

3. The applicant is reminded that he must enter the "national phase" **before the expiration of 30 months from the priority date** before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing , if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

   Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

   The entry into the European regional phase is postponed **until 31 months from the priority date** for all States designated for the purposes of obtaining a European patent.

| The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland | Authorized officer:
Lazar Joseph Ǝanakal |
| --- | --- |
| Facsimile No. (41-22) 740.14.35 | Telephone No. (41-22) 338.83.38 |

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

To:
FISH & RICHARDSON P.C.
Attn. PHILLIPS, J.
601 Thirteenth Street, N.W.
Washington, DC 20005
UNITED STATES OF AMERICA

RECEIVED
JAN 21 1999
FISH & RICHARDSON, P.C.
WASHINGTON, D.C.
PRACTICE SYSTEMS

Docketed By Practice Systems
Action Code: _Search Report IS/ON_
Base Date: _5-12-99_
_7-12-99_
Due Date:
Deadline: _7-12-99_
Initials: _[signature]_
Record: _____

Applicant's or agent's file reference	Date of mailing (day/month/year)	12/05/1999
06975/029W04	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No.	International filing date (day/month/year)	23/12/1998
PCT/US 98/ 27465		

Applicant

AMERICA ONLINE, INC. et al.

1. [X] The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the   International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Fascimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

Docketed By Billing Secretary
Due Date: _7.12.99_
Deadline: _7.12.99_
Initials: _[signature]_

2. [ ] The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. [ ] **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

[ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

[ ] no decision has been made yet on the protest: the applicant will be notified as soon as a decision is made.

4. **Further action(s):**   The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Lucia Van Pinxteren

Form PCT/ISA/220 (July 1998)

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international pbulication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?
Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?
Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped),whether

    (i)   the claim is unchanged;

    (ii)   the claim is cancelled;

    (iii)   the claim is new;

    (iv)   the claim replaces one or more claims as filed;

    (v)   the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."

2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."

3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."

4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international appplication is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

ENT COOPERATION TREATY

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 06975/029W04	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as. where applicable, item 5 below.
International application No. PCT/US 98/ 27465	International filing date *(day/month/year)* 23/12/1998	(Earliest) Priority Date *(day/month/year)* 24/12/1997
Applicant AMERICA ONLINE, INC. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of _____3_____ sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application. the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. _____

   [ ] as suggested by the applicant.   [X] None of the figures.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6   G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6   G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category°	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BIEBER M ET AL: "Fourth generation hypermedia: some missing links for the World Wide Web" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 31-65, XP002101194 ISSN 1071-5819 see page 53, line 30 - page 56, line 28 see figures 1-3	1-10, 12-16, 20-46
X	US 5 481 710 A (KEANE PATRICK J ET AL) 2 January 1996 see abstract see column 1, line 62 - column 2, line 54 see column 6, line 46 - column 8, line 9	42,44
A	-/--	1-41

[X] Further documents are listed in the continuation of box C.   [X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 April 1999	12/05/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Abbing, R

Form PCT/ISA/210 (second sheet) (July 1992)

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document. with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	TAUSCHER L ET AL: "How people revisit web pages: empirical findings and implications for the design of history systems" INTERNATIONAL JOURNAL OF HUMAN-COMPUTER STUDIES, JULY 1997, ACADEMIC PRESS, UK, vol. 47, no. 1, pages 97-137, XP002101195 ISSN 1071-5819 see page 101, line 30 - page 104, line 22 see page 124, line 15 - page 128, line 8 ---	1-46
A	BIEBER M: "Providing information systems with full hypermedia functionality" PROCEEDING OF THE TWENTY-SIXTH HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES (CAT. NO.93TH0501-7), WAILEA, HI, USA, 5-8 JAN. 1993, pages 390-400 vol.3, XP002101196 ISBN 0-8186-3230-5, 1993, Los Alamitos, CA, USA, IEEE, USA see page 393, column 2, line 7 - page 393, column 2, line 49 see page 395, column 2, line 5 - page 396, column 2, line 34 see figures 2,3 -----	1,2, 28-30, 42,44

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